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PART II

FEDERAL COMMUNICATIONS COMMISSION

■

PRIVATE LAND MOBILE RADIO SERVICE

Re-regulation

[6712-01-M]

Title 47—Telecommunication

CHAPTER I—FEDERAL COMMUNICATIONS COMMISSION

[Docket No. 21348; FCC 78-799]

PRIVATE LAND MOBILE RADIO SERVICE

Reregulation

AGENCY: Federal Communications Commission.

ACTION: Report and order.

SUMMARY: This action finalizes proposals for reregulation of the rules governing the Private Land Mobile Radio Services. These rules were formerly contained in Parts 89, 91, and 93. This action substitutes new Part 90 for these three rules parts and in this way consolidates and updates the provisions involved. The result is a simpler, more modern manageable set of rules for use by applicants, licensees, and industry users.

EFFECTIVE DATE: January 2, 1979.

ADDRESSES: Federal Communications Commission, 1919 M Street NW., Washington, DC 20554.

FOR FURTHER INFORMATION CONTACT:

Richard Taube or Art King, Safety and Special Radio Services Bureau, 202-632-6497.

In the matter of amendment of the Commission's rules governing the private land mobile radio service to provide a new Part 90 that reregulates and consolidates Parts 89, 91, and 93. Report and order.

Adopted: November 14, 1978.

Released: November 16, 1978.

By the Commission; Commissioner White absent.

1. On July 27, 1977, a notice of proposed rulemaking was released in this proceeding to amend the Commission's rules by adding a new part to be designated as Part 90 for the regulation of the private land mobile radio services. The Commission's present rules for these radio services are in three separate rule parts that would be deleted: Part 89 covers the public safety radio services which include local government, public safety, and medical radio uses; Part 91 governs the industrial radio services which cover radio operations for commercial, manufacturing, and utility activities; and Part 93 combines land transportation radio services for passenger- and freight-carrying land-based vehicles. The proposals in this proceeding were intended to consolidate these present rules into the single Part 90 rule part.

2. The consolidation effort was found to be desirable in view of the commonality that exists between the present three private land-mobile rule parts. Provisions in each part relating to general eligibility requirements, application procedures, and technical and operational standards are similar and often indentical both in language and effect. Part 90 would eliminate these repetitious provisions and the confusion which now results from minor differences that have no special purpose or intent. At the same time, development of Part 90 would permit updating and improving these rules by deleting obsolete provisions, by clarifying and simplifying the rules language, and by including minor substantive changes that reflect current Commission policies and procedures. Normally, accomplishing changes of this nature would necessitate numerous separate rulemaking actions. It was emphasized, however, that the proceeding is not intended to alter the purposes and standards of the various private land mobile radio services; nor would the Commission consider frequency reallocation issues, problems concerning innovative procedures or requirements, or matters that involve competitive or divergent interests.

3. Comments were received from the parties listed below. In general, the comments support the Part 90 approach. The American Petroleum Institute stated:

> • • • simplification of the Commission's rules and regulations in the general form proposed will be beneficial for those applicants and licensees who deal with many of the regulations on a day-to-day basis as does the Commission's staff, as well as for equipment vendors and frequency advisory committees. Even as to those individuals who are not required to refer to the rules on a day-to-day basis, the proposed consolidation clearly appears to have many advantages over the present format followed in Parts 89, 91 and 93.

Forest Industries Telecommunications notes:

> The Commission is to be commended in its proposal to consolidate the redundant and repetitive portions of its rules, Parts 89, 91 and 93 into a new Part 90. Further we agree with the Commission's conclusion that such consolidation should include deregulation where possible and that the resulting combination of deregulation and simplification will enhance comprehension and readability. FIT believes the Commission has made a major step in this direction through the vehicle of the subject proposed rulemaking.

And, similarly, from Minnesota:

> The State of Minnesota, Office of Electronic Communications firmly supports the Commission in its efforts to clarify, simplify, deregulate, and consolidate where possible its rules and regulations regarding the land mobile radio services. Similarities in the various parts of the rules, with some minor inconsistencies through historic, periodic modifications, has from time to time led to some confusion. Consolidation of common major portions of the rules can lead to better understanding on the part of the user, and can enhance user activity by reducing research and reference time expended.

4. The comments confirm the Commission's conclusion that amendment of the rules to add Part 90 essentially as proposed appears to be both timely and productive. The single rules part format will no doubt be easier for both the public and the Commission to deal with in the use and regulation of private land mobile radio station facilities. Accordingly, we have determined to finalize the proposals by substituting Part 90 for present rule Parts 89, 91, and 93. At the same time, a number of modifications were suggested in the comments or are required as a result of recent collateral rulemaking actions so that Part 90 in its final form and content contains numerous changes. Many of these changes are editorial involving oversights, corrections, deletions, and so forth, and they do not require discussion. Other suggestions involve minor modification of the proposed provisions. Each of there recommendations has been carefully considered and, as appropriate and feasible, a number of changes reflecting these comments are in the finalized rules. Still other changes recommended are more significant and these will be discussed in the following paragraphs. It should be noted, however, that we have adhered closely to the principles enunciated for limiting the scope of this proceeding. Thus, comments suggesting changes that are not in keeping with the purposes and objectives of this rulemaking action have not been considered.[1]

5. The Commission requested specific suggestions concerning the layout of Part 90. As proposed, Part 90 would contain 17 subparts rather than the 34 subparts throughout Parts 89, 91, and 93.[2] The initial subpart (Subpart A) sets forth general information as to the basis and purpose of the private

[1] A notable example is the comment of Telemotive Products Group Dynascan Corp. This comment proposes a new subpart to consolidate and govern "Industrial Remote Control Operations." The purpose would be to eliminate the requirement that this functional use be related to eligibility, frequencies, and standards for specific radio services. Clearly, in the Commission's judgment, and as argued in a reply comment from the Utilities Telecommunications Council, this matter is beyond the scope of this proceeding. The proposal could be presented in an appropriate petition under Section 1.401 of the Commission's rules for requesting rule changes.

[2] As a result of rulemaking action in Doc. No. 20846, adopted Aug. 17, 1978 (FCC 78-622), an 18th subpart to cover control of transmitters and to clarify requirements for interconnected radio systems, has been added to the final version of Pt. 90.

land mobile rules and describes the content and organization of Part 90 for easy reference. One new provision (§ 90.5) includes references to other parts of the Commission's rules that are often of importance to applicants and licensees. Definitions are included in this subpart, a number of which are new definitions, and others are modified as necessary to reflect current standards. Many matters that appear as "general information" in present Parts 89, 91, and 93 are not considered appropriate for inclusion in this subpart. For example, Part 89 includes application requirements and procedures, technical standards, and operating requirements all as "general information." In Part 90, these matters are covered in separate more pertinent rule subparts.

6. Subparts B, C, D, E, and F cover, respectively, the public safety, the special emergency, the industrial, the land transportaion, and the radiolocation categoriés of radio services. Thus radio services would no longer be separate subparts as at present, but would fall into these broader categories. Each of these subparts sets forth for each radio service it covers the standards for eligibility, permissible communications, any special conditions, and a listing of the frequencies assignable together with their limitations. One radio service, the State guard service, will be deleted as a separate service with provision made for licensing State guard functions in the local government radio service (see § 90.17 (b) and (c)). The only other reclassification in radio services would expand the present industrial radiolocation service to become the radiolocation radio service to incorporate all radiolocation functions (see Subpart F).

7. One change in Part 90 that should be helpful is that the description for each radio service will contain for ready reference virtually every frequency that may be regularly assigned in the particular service involved, as well as those frequencies shared on a secondary basis with licensees in other services, available only on a renewal basis under "grandfathered" provisions, or assignable under limited conditions or for special uses, including developmental uses. The frequencies would be listed in tables supplemented by a description of special additional frequencies assignable. This should greatly simplify an applicant's search for appropriate frequencies, particularly in the land transportation services where the frequencies are not presently listed in a table format. The only frequency not in these lists is the frequency 4883.2 kHz, which is available in all of the services without the necessity of specific authorization, but only in Alaska (see § 90.253). Another change that should aid in frequency selection applies to the limitations on the assignable frequencies. We have eliminated redundant provisions and combined and renumbered many of these limitations, while others are modified to simplify the language. Finally, we have included as a supplement section to Part 90 (§ 90.555) a single complete numerical listing of every frequency assignable together with a one word or coded description of radio services for the frequency, general uses, and any special uses.

8. Many provisions that are presently included under individual radio services subparts of Parts 89, 91, and 93, concern matters that will not be included in the services sections in Part 90. These include points of communication, secondary nonvoice signaling, requirements for relay and control stations, etc., all of which appear in other appropriate subparts of Part 90.

9. Subpart G contains the licensing procedures for private land mobile station applications. Provisions therein generally conform to present rule requirements for filing and processing license requests. Some changes to note include the addition of a section (now in Part 1 of the Commission's rules) as to procedures for Canadian licensees to operate in the United States when permitted under treaty agreements (§ 90.121); the elimination of references to construction permits, as these are no longer issued; and the deletion of requirements, including the use of Form 456, for notification to a Commission field office of commencement of operation, as presently contained in Parts 89, 91, and 93 in numerous sections. In addition, we have extensively expanded the rules concerning procedures for making changes in authorized stations. For example, § 90.135 describes and clarifies each specific type of change that requires an application for modification of license.

10. The Commission's policies for assignment and use of frequencies in the private land mobil services are now detailed in Subpart H. Important information is included in this subpart with respect to such matters as intersystem interference, frequency coordination, and cooperative use. One change from present policy deletes the requirement for applicants to select the highest order of frequencies available since the necessary exceptions to this standard have rendered the requirment relatively meaningless.

11. Technical standards of a general nature are detailed in Subpart I. Of note is new § 90.207 which sets forth not only the emissions that may be authorized under this part, but also the references to the types of operations in which they may be utilized. One present requirement being detailed as unwarranted is that applicants will no longer need to furnish a description of tone codes for nonvoice signaling operations. Those technical standards which apply to specialized operations are set forth in Subpart J. That subpart includes secondary nonvoice signaling provisions and the special requirements for radioteleprinter, radiofacsimile, automatic vehicle monitoring, and radio call boxes. Subpart J also consolidates the various present rule provisions for the authorization and operations of relay and repeater equipment (including vehicular repeaters). This should be particularly advantageous in the design of systems for private land mobile operations.

12. There are a number of special frequencies or frequency bands which are available on a general basis in the private land mobile services. They are noted in the individual frequency tables but the standards applicable to these bands are extensive and, therefore, these frequencies and standards have been included in Subparts K, L, and M. Subpart K contains the special standards for the frequency 4383.8 kHz, and the bands 27.235–27.275 MHz, 72–76 MHz, 216–220 MHz, 450–470 MHz (secondary cross-service fixed), and 1427–1435 MHz. standards for substitution of frequencies below 25 MHz are also included in this subpart. Subpart L deals exclusively with the special standards, requirements, and procedures for authorizations in the band 470–512 MHz on the frequencies derived from the Commission's UHF–TV sharing program. Similarly, Subpart M governs special licensing and use of frequencies in the 806–821 MHz and 851–866 MHz bands.

13. Subpart N covers operating requirements. Many of these requirements relating to such matters as permissible and prohibited communications, interstation communication limitations, points of communication, and operation of mobile units by persons other than the licensee, presently appear in differing formats in Parts 89, 91, and 93, either in general provisions or under application procedures, or in the radio services subparts. There is also presently a somewhat random pattern as to where station-identification requirements can be found. Incorporation of each of these operational requirements into one Subpart in part 90 has enabled us to provide language which is consistent and which should facilitate comprehension and compliance. Further, we have taken this opportunity to simplify and update some of these requirements. A notable example is in the station identification area where the consolidated provisions should prove much easier to understand and less burdensome to follow. Another clarifying provision appears in § 90.419(a), concerning the present provisions in Part 89 that permit sec-

ondary fixed uses of public safety and special emergency base station frequencies. Such secondary fixed uses are intended to be authorized only on frequencies below 450 MHz, and this provision reflects this limitation. it also appears to the Commission that present special provisions, which allow Industrial and land transportation stations to utilize base station frequencies for fixed station communications under certain restricted circumstances involving urgent need to contact mobile units, should be extended to the public safety and special emergency services on frequencies above 450 MHz. Section 90.419(b) reflects this change. Note, also, the new provision in § 90.441(b), added to permit licensees sharing a tower to appoint one licensee or an appropriate agent to perform inspection, maintenance, and logging functions. This is not now authorized in the rules but has been allowed on a case-by-case basis.[3]

14. Subpart O reflects the recent Commission rulemaking action in Docket No. 20846 (FCC 78-622, adopted Aug. 17, 1978). This subpart covers control of transmitters. Methods and control requirements for interconnecting private land mobile systems to the public telephone networks are included. Some of these provisions are interim pending further action in Docket No. 20846.

15. Subpart P sets forth the special requirements for licensing of stations in the Chicago region under the Chicago land mobile spectrum management program. The program applies to major areas in Illinois, Indiana, Iowa, Michigan, and Wisconsin.

16. The developmental licensing procedures are contained in Subpart Q. The final subpart, Subpart R, includes the provisions that apply to formalized emergency communications plans for the industrial and land transportation services. The industrial plan, the industrial communications emergency plan (ICEP), contains the requirements recently adopted in Docket 19312 (FCC 75-1285). The land transportation industries communications emergency plan (LATICEP) will be revised in a separate Commission action.

17. One issue of note as to the Part 90 layout was raised by some parties who expressed concern that the special emergency radio service would be "taken out" of the public safety radio services to become a separate category of radio services under Subpart C. Comments of the Associated Public Safety Communications Officers, Inc. (APCO), highlight the problems asserted to be involved:

> Special emergency systems in support of ambulance and rescue services, disaster relief services and school transportation systems display many of the characteristics of traditional police, fire, and local government safety agencies. Many of these emergency services are operated by municipal, county, and State agencies as adjuncts to other public safety services. In general, the rules for operating personnel of special emergency systems are similar to those for other public safety radio systems, and the activities of emergency groups are often undertaken jointly with police or fire departments or local government units. The trend toward municipal or countywide public safety dispatch centers linked to the 911 emergency telephone systems has increased the interaction of special emergency organizations with other public safety agencies * * *. This integration of special emergency systems with other public safety systems should suffice to show that the special emergency radio services belong with public safety radio services and should be accorded similar treatment and priority, by being placed in Subpart B of Part 90.

18. The Commission does not concur that the separation of special emergency radio services into a rules category apart from public safety radio services has any important bearing on licensability, allocations, operational standards, status, or consideration of the relative services. This delineation merely reflects an administrative determination that the dissimilarities between these categories of services, as well as the other categories (i.e., industrial, land transportation, radiolocation), require this rules structure. In general, it is our view that this approach makes the rules significantly easier to deal with, and that is the underlying objective of this proceeding. Specifically, licenses in public safety services are almost exclusively issued to local governments, whereas the most prolific special emergency services, such as medical, rescue, buses, veterinarians, are predominantly licensed to individuals or private organizations. Also, the assignment of frequencies is distinctly different. Public safety applicants must geographically coordinate frequency selection; while in special emergency, frequencies are available only for shared use. Other distinctions could be noted but the more relevant point is that we see no handicap, despite these differences and despite the Part 90 structure, to accomplishment of the objectives noted by APCO and by the other parties who expressed similar concerns. Accordingly, no change has been made in this regard in the final version of Part 90.

19. The Commission specifically asked for comments as to the combined frequency list which was proposed as a quick-reference guide. The parties who commented in this regard found this special listing to be very helpful and as noted it is being retained as a supplement at the end of Part 90. Another important tool for users is the cross-reference table which list the various rule sections in Parts 89, 91, and 93, indicates the action taken to conform each section to Part 90, and gives the Part 90 reference as applicable. This table appears at § 90.560 of the finalized Part 90. The alphabetical word index reference table proposed to be included in Part 90, received little comment. It appears that while this index could be helpful, it is largely duplicative of the regular table of contents. We are not including this table at this time.

20. Apart from format, there were suggestions in the comments for changes in the Part 90 provisions which have been accomplished. Some of these relate to definitions which we agree should be added and, we have also modifed certain definitions as requested for clarification or completeness. New added definitions include "itinerant operation," "land station," "operational fixed station," and "travelers information station," as well as a number of other terms derived from recent rulemaking actions. (See § 90.7.)

21. The Central Station Electrical Protection Association asks that we reinstate the requirement for applications for frequencies for the central station activities to be approved by recognized central station rating agencies. This requirement had been proposed to be deleted but it appears appropriate to continue this approval procedure to assure consistent use of the specially allocated frequencies for this activity.

22. As noted, the finalized version of Part 90 contains a number of amendments which result from the rulemaking changes to Parts 89, 91, and 93 in recent Commission docket actions. It had been anticipated that the Commission might revise its rules governing cooperative use of private land mobile radio stations[4] and that these revisions would also replace present provisions. For this reason, the proposed Part 90 did not include cooperative use provisions. However, this rulemaking action has not yet been taken and, accordingly, we have consolidated the present cooperative-use rules of Parts 89, 91, and 93 and they appear in §§ 90.179 to 90.185 in the finalized Part 90.

23. Other Commission rulemaking actions that affect Parts 89, 91, and 93

[3] Sears Roebuck Co. asks in its comments that a nonlicensed agent, such as the landlord of the building where the tower is located, or the owner of the tower, be acceptable to perform these functions. This arrangement appears appropriate and the proposed rule change has been amended accordingly. Sears also requests that we relieve the other licensees of responsibility for the proper performance of these functions when one licensee or a nonlicensed agent is appointed. However, no compelling reason has been given and the Commission must from a regulatory standpoint look to each licensee for meeting rule requirements particularly when nonlicensed agents of licensees may be involved.

[4] These rule changes are under consideration in Docket No. 18921.

will be included editorially in Part 90 until it becomes effective. After Part 90 becomes effective, all relevant Commission rulemaking actions will be reflected solely as Part 90 changes.

24. In consideration of the foregoing, the Commission determines that it is in the public interest, convenience, and necessity to amend its rules to add a new Part 90 to replace Parts 89, 91, and 93 of the Commission's rules for the regulation of private land mobile radio operations.

25. Accordingly, pursuant to authority contained in sections 4(i) and 303(r) of the Communications Act of 1934, as amended, *It is ordered*, That, effective January 2, 1979, volume V of the Commission's rules is amended by deleting Parts 89, 91, and 93 and substituting therefor Part 90 as shown below. *It is further ordered*, That this proceeding is terminated.

(Secs. 4, 303, 48 Stat., as amended, 1066, 1082; 47 U.S.C. 154, 303.)

FEDERAL COMMUNICATIONS COMMISSION,
WILLIAM J. TRICARICO,
Secretary.

LISTING OF PARTIES WHO SUBMITTED COMMENTS

American College of Emergency Physicians
American Petroleum Institute
Associated Public Safety Communications Officers, Inc.
Association of American Railroads
Forest Industries Telecommunications
Maryland Institute for Emergency Medical Services
Mid-Atlantic Emergency Medical Services Council, Inc.
Minnesota Department of Transportation
Motorola, Inc.
National Association of Business and Educational Radio, Inc.
Offshore Navigation, Inc.
Sears, Roebuck & Co.
Seattle, Wash.
Special Industrial Radio Services Association, Inc.
Telemotive Product Group Dynascan Corp.
Utilities Telecommunications Council
Virginia Department of Health
West Virginia Department of Health

REPLY COMMENTS

Aeronautical Radio, Inc.
Central Station Electrical Protection Association
Utilities Telecommunications Council

Chapter I of Title 47 of the Code of Federal Regulations is amended by the deletion of Parts 89, 91, and 93 of the FCC rules and regulations and the substitution therefor of Part 90 as follows:

PART 89—[DELETED]

PART 90—PRIVATE LAND MOBILE RADIO SERVICES

Subpart A—General Information

Sec.
90.1 Basis and purpose.
90.3 Organization and applicability of the rules.
90.5 Other applicable rule parts.
90.7 Definitions.

Subpart B—Public Safety Radio Services

90.15 Scope.
90.17 Local government radio service.
90.19 Police radio service.
90.21 Fire radio service.
90.23 Highway maintenance radio service.
90.25 Forestry-conservation radio service.

Subpart C—Special Emergency Radio Service

90.33 Scope.
90.35 Medical services.
90.37 Rescue organizations.
90.39 Veterinarians.
90.41 Disaster relief organizations.
90.43 School buses.
90.45 Beach patrols.
90.47 Establishment in isolated areas.
90.49 Communications standby facilities.
90.51 Emergency repair of public communications facilities.
90.53 Frequencies available.
90.55 Paging operations.

Subpart D—Industrial Radio Services

90.59 Scope.
90.61 General eligibility.
90.63 Power radio service.
90.65 Petroleum radio service.
90.67 Forest products radio service.
90.69 Motion picture radio service.
90.71 Relay press radio service.
90.73 Special industrial radio service.
90.75 Business radio service.
90.79 Manufacturers radio service.
90.81 Telephone maintenance radio service.

Subpart E—Land Transportation Radio Services

90.85 Scope.
90.87 General eligibility.
90.89 Motor carrier radio service.
90.91 Railroad radio service.
90.93 Taxicab radio service.
90.95 Automobile emergency radio service.

Subpart F—Radiolocation Service

90.101 Scope.
90.103 Radiolocation service.

Subpart G—Applications and Authorizations

90.111 Scope.
90.113 Station authorization required.
90.115 Ineligibility of foreign governments.
90.117 Applications for radio station authorizations.
90.119 Application forms.
90.121 Canadian registration.
90.123 Full disclosures.
90.125 Who may sign applications.
90.127 Filing applications.
90.129 Supplemental information to be routinely submitted with applications.
90.131 Amendment or dismissal of applications.
90.135 Modification of license.
Sec.
90.137 Applications for operation at temporary locations.
90.139 Preliminary processing of applications.
90.141 Resubmitted applications.
90.143 Grants of applications.
90.145 Special temporary authority.
90.147 Mailing address furnished by licensee.
90.149 License term.
90.151 Requests for waiver.
90.153 Assignment of station authorization.
90.155 Time in which station must be placed in operation.
90.157 Discontinuance of station operation.

Subpart H—Policies governing the assignment of frequencies

90.171 Scope.
90.173 Policies governing the assignment of frequencies.
90.175 Frequency coordination requirements.
90.177 Protection of certain radio receiving locations.
90.179 Cooperative use of public safety and special emergency land mobil radio stations.
90.181 Cooperative use of industrial and radio location land mobile radio stations.
90.183 Cooperative use of land transportation radio stations.
90.185 Cooperative use of fixed radio stations.

Subpart I—General Technical Standards

90.201 Scope.
90.203 Type acceptance required.
90.205 Power.
90.207 Types of emission.
90.209 Bandwidth limitations.
90.211 Modulation requirements.
90.212 Provisions relating to the use of scrambling devices and digital voice modulation.
90.213 Frequency tolerance.
90.215 Transmitter measurements.
90.217 Exemption from technical standards.

Subpart J—Nonvoice and Other Specialized Operations

90.231 Scope.
90.233 Secondary base/mobile non-voice signaling operations.
90.235 Secondary fixed tone signaling and alarm operations.
90.237 Interim provisions for operation of radioteleprinter and radio-facsimile devices.
90.239 Interim provisions for operation of automatic vehicle monitoring (AVM) systems.
90.241 Radio call box operations.
90.242 Travelers' information stations.
90.243 Mobile relay stations.
90.245 Fixed relay stations.
90.247 Mobile repeater stations.
90.249 Control stations.

Subpart K—Standards for Special Frequencies or Frequency Bands

90.251 Scope.
90.253 Use of frequency 4383.8 kHz.
90.255 Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz.

Sec.
90.257 Assignment and use of frequencies in the band 72-76 MHz.
90.259 Assignment and use of frequencies in the bands 216-220 MHz and 1427-1435 MHz.
90.261 Assignment and use of frequencies in the band 450-470 MHz for fixed operations.
90.263 Substitution of frequencies below 25 MHz.

Subpart L—Authorization in the Band 470-512 MHz (UHF-TV Sharing)

90.301 Scope.
90.303 Availability of frequencies.
90.305 Location of stations.
90.307 Protection criteria.
90.309 Tables and figures.
90.311 Frequencies.
90.313 Frequency loading criteria.
90.315 Special provisions governing use of frequencies in the 488-494 MHz band (TV Channel 17) in the southern Louisiana Offshore zone.

Subpart M—Special Regulations Governing Licensing and Use of Frequencies in the 806-821 MHz and 851-866 MHz Bands

90.351 Scope.

APPLICATIONS FOR AUTHORIZATIONS IN THE 806-821 MHz AND 851-866 MHz BANDS

90.355 Eligibility.
90.357 Forms to be used.
90.359 Supplemental information to be furnished by applicants for facilities under this subpart.
90.361 Special limitations on amendment of application for assignment or transfer of authorizations for radio systems used to provide service to persons other than the licensee.

POLICIES GOVERNING THE PROCESSING OF APPLICATIONS AND THE SELECTION AND ASSIGNMENT OF FREQUENCIES FOR USE IN THE 806-821 MHz AND 851-866 MHz BANDS

90.363 Processing of applications.
90.365 Selection and assignment of frequencies.
90.367 Limitation on the number of frequencies assignable for conventional systems.
90.369 Other criteria to be applied in assigning channels for use in conventional systems of communication.
90.371 Limitation on the number of frequency pairs assignable for trunked systems and on the number of trunked systems.
90.373 Restriction on licensing manufacturers in the 806-821 MHz and 851-866 MHz bands.

CHANNEL LOADING REQUIREMENTS FOR TRUNKED AND CONVENTIONAL SYSTEMS OPERATING IN THE 806-821 AND 851-866 MHz BANDS

90.375 Trunked systems loading requirements.
90.377 Conventional systems loading requirements.

TECHNICAL REGULATIONS REGARDING THE USE OF FREQUENCIES IN THE 806-821 MHz AND 851-866 MHz BANDS

90.379 Limitations on power and antenna height.
90.381 Restrictions on operational fixed stations.
90.383 Acceptability of transmitters for licensing in the 806-821 and 851-866 MHz bands.

OPERATING REQUIREMENTS IN THE 806-821 MHz AND 851-866 MHz BANDS

90.385 Restrictions and limitations on permissible communications, on use, and on mode of operation.
90.387 Station identification.
90.389 Restriction on interconnection.
90.391 Supplemental reports required of licensees authorized under this subpart.

OTHER PROVISIONS GOVERNING THE USE OF THE 806-821 MHz AND 851-866 MHz BANDS

90.393 Special conditions governing the furnishing of radio equipment by licensees.
90.395 Number of systems authorized in a geographical area.
90.397 Special licensing requirements for radio systems used to provide service to persons other than the licensee.

Subpart N—Operating Requirements

90.401 Scope.
90.403 General operating requirements.
90.405 Permissible communications.
90.407 Communications permitted during emergency situations.
90.409 Emergency operations of public safety and special emergency mobile stations at fixed locations.
90.411 Civil defense communications in the public safety and special emergency radio services.
90.413 Civil defense communications in the taxicab radio service.
90.415 Prohibited Uses.
90.417 Interstation communication.
90.419 Points of communication.
90.421 Operation of mobile units in vehicles not under the control of the licensee.
90.423 Operation on board aircraft.
90.425 Station identification.
90.427 Precautions against unauthorized operation.
90.429 Control point and dispatch point requirements.
90.431 Unattended operation.
90.433 Operator license requirements.
90.435 Posting of operator license.
90.437 Posting station licenses.
90.439 Inspection of stations.
90.441 Inspection and maintenance of tower marking and associated control equipment.
90.443 Content of station records.
90.445 Form of station records.
90.447 Retention of station records.
90.449 Answers to a notice of violation.

Subpart O—Transmitter Control

90.461 Direct and remote control of transmitters.
90.463 Transmitter control points
90.465 Control of systems of communication.
90.467 Dispatch points.
90.469 Unattended operation.
90.471 Points of operation in internal systems.
90.473 Operation of internal systems through licensed fixed control points.
90.475 Operation of internal systems in specially equipped systems.
90.477 Restrictions on interconnected systems.
90.479 Interconnection of radio systems with the facilities of telephone companies.
90.481 Permissible methods of interconnecting private and public systems of communications.
90.483 Special requirements pertaining to the methods of interconnection.
90.485 One-way paging operations in the 806-821 MHz and 851-866 MHz bands.
90.487 One-way paging operations in the bands below 512 MHz.

Subpart P—Chicago Land Mobile Spectrum Management

90.491 Scope.
90.493 Chicago region.
90.495 Applications.
90.497 Special provisions relating to frequency assignments in the Chicago region.

Subpart Q—Developmental Operation

90.501 Scope.
90.503 Eligibility.
90.505 Showing required.
90.507 Limitations on use.
90.509 Frequencies available for assignment.
90.511 Interference.
90.513 Special provisions.
90.515 Change or cancellation of authorization without hearing.
90.517 Report of operation.

Subpart R—Emergency Communications Pursuant to the Industrial Communications Emergency Plan (ICEP) and the Land Transportation Industries Communications Emergency Plan (LATICEP)

90.525 Industrial Communications Emergency Plan (ICEP).
90.527 Land Transportation Industries Communications Emergency Plan (LATICEP).
90.555 Combined frequency listing.
90.560 Cross-reference table.

Subpart A—General Information

§ 90.1 Basis and purpose.

(a) *Basis.* The rules in this part are promulgated under Title II of the Communications Act of 1934, as amended which vests authority in the Federal Communications Commission to regulate radio transmission and to issue licenses for radio stations. All rules in this part are in accordance with applicable treaties and agreements to which the United States is a party.

(b) *Purpose.* This part states the conditions under which radio communications systems may be licensed and used in the Public Safety, Special Emergency, Industrial, Land Transportation, and Radiolocation Radio Services. These rules do not govern radio systems employed by agencies of the Federal Government.

§ 90.3 Organization and applicability of the rules.

The rules in this part are divided in 17 subparts as follows:

(a) Subpart A contains general information and definitions for use in this part.

(b) Subparts B, C, D, E, and F set forth the radio services governed under this part and include eligibility provisions, listing of frequencies available for each radio service, and special requirements and limitations applicable to a particular radio service.

(c) Subpart G describes the procedures and requirements for filing applications and licensing radio stations under this part.

(d) Subpart H provides requirements for selection of frequencies.

(e) Subpart I contains general technical standards for use of equipment under this part.

(f) Subpart J contains standards for certain specialized uses.

(g) Subpart K contains standards for the use of certain frequencies or frequency bands.

(h) Subpart L contains special regulations for operation in the 470–512 MHz band.

(i) Subpart M contains special regulations for operation in the 806–821 and 851–866 MHz bands.

(j) Subpart N sets forth system operating requirements.

(k) Subpart O contains special regulations for operation in the Chicago Land Mobile Spectrum Management District.

(l) Subpart P provides regulations for the authorization of developmental operations.

(m) Subpart Q contains regulations for emergency operations in the Industrial Radio Services (ICEP), and in the Land Transportation Radio Services (LATICEP).

§ 90.5 Other applicable rule parts.

Other Commission rule parts of importance that may be referred to with respect to licensing and operations in radio services governed under this part include the following:

(a) Part O of the Commission's Rules describes the Commission's organization and delegations of authority. This part also lists available Commission publications, and standards and procedures for access to Commission records, and location of Commission Field Offices.

(b) Part 1 includes rules of practice and procedure for adjudicatory proceedings including hearing proceedings, rule making proceedings; procedures for reconsideration and review of the Commission's actions; provisions concerning violation notices and for forfeiture proceedings; and the requirements for environmental impact statements.

(c) Part 2 contains the table of frequency allocations and special requirements in International regulations, agreements, and treaties. This part also contains standards and procedures concerning marketing of radio frequency devices, and for obtaining equipment type acceptance and type approval.

(d) Part 5 contains standards and procedures for obtaining experimental authorizations.

(e) Conditions under which the operations of incidental and restricted radio devices are permitted are in Part 15.

(f) Part 17 contains detailed requirements for construction, marking, and lighting of antenna towers.

(g) Part 18 deals with the operation of industrial, scientific, and medical (ISM) devices that are not intended for radio communication,

(h) Part 68 contains technical standards for connection of private land mobile equipment to the public switched telephone network.

(i) Part 94 governs licensing and operation of private operational-fixed radio stations on frequencies above 952 MHz (Microwave).

§ 90.7 Definitions.

Antenna height above average terrain (AAT). Height of the center of the radiating element of the antenna above the average terrain. (See § 90.309(a)(4) for calculation method.)

Antenna height above sea level. The height of the topmost point of the antenna above mean sea level.

Antenna structure. Structure on which an antenna is mounted.

Assigned frequency. Center of a frequency band assigned to a station.

Assigned frequency band. The frequency band the center of which coincides with the frequency assigned to the station and the width of which equals the necessary bandwidth plus twice the absolute value of the frequency tolerance.

Authorized bandwidth. The frequency band, specified in kilohertz and centered on the carrier frequency containing those frequencies upon which a total of 99 percent of the radiated power appears, extended to include any discrete frequency upon which the power is at least 0.25 percent of the total radiated power.

Automatic Vehicle Monitoring (AVM). The use of non-voice signalling methods from and to vehicles to make known at fixed points the location of the vehicles. AVM systems may also transmit status and instructional messages related to the vehicles involved.

Average terrain. Tha average elevation of terrain between 2 and 10 miles from the antenna site.

Base station. A station at a specified site authorized to communicate with mobile stations.

Carrier frequency. The frequency of an unmodulated electromagnetic wave.

Channel loading. The number of mobile transmitters authorized to operate on a particular channel within the same service area.

Control point. Any place from which a transmitter's functions may be controlled.

Control station. An Operational Fixed Station, the transmissions of which are used to control automatically the emissions or operation of another radio station at a specified location.

Conventional radio system. A method of operation in which one or more radio frequency channels are assigned to mobile and base stations but are not employed as a trunked group. An "urban-conventional system" is one whose transmitter site is located within 15 miles (24 km) of the geographic center of any of the first 50 urbanized areas (ranked by population) of the United States. A "suburban-conventional system" is one whose transmitter site is located more than 15 miles (24 km) from the geographic center of the first 50 urbanized areas. See Table 21, Rank of Urbanized Areas in the United States by Population, page 1-87, U.S. Census (1970); and Table 1 of paragraph (h) of 90.365.

Developmental operation. A specially licensed operation for the purpose of testing concepts in the use of radio appropriate to the radio services governed by this part.

Dispatch point. Any place from which radio messages can be originated under the supervision of a control point.

Effective radiated power (ERP). The power supplied to an antenna multiplied by the relative gain of the antenna in a given direction.

Fired relay station. A station at a specified site used to communicate with another station at another specified site.

Frequency advisor. An individual or entity that has been recognized by the Commission for the purpose of coordinating the assignment of frequencies, by recommending, to applicants, upon request, appropriate frequencies for which to apply.

Geographic center. The geographic center of an urbanized area is defined by the coordinates given at Table 1 of paragraph (h) of § 90.365.

Harmful interference. For the purposes of resolving conflicts between stations operating under this part, any emission, radiation, or induction which specifically degrades, obstructs, or interrupts the service provided by such stations.

Interconnection. Connection, either through automatic or manual means, of private systems of radio communication with the facilities of the public switched telephone network to permit

the transmission of messages or signals between points in the public telephone network and persons or points served by the private radio system. Wire line or radio links furnished by common carriers and used by licensees for transmitter control, including dial-up circuits, are not included within the definition of interconnected systems. Such facilities are treated as separate and distinct and are regulated under the provisions of § 90.461.

Internal System. An internal system of communication is one in which all messages are transmitted between the fixed operating positions located on premises controlled by the licensee and the associated mobile stations or paging receivers of the licensee. (See Subpart O).

Interzone station. A fixed station in the Police Radio Service using radio telegraphy (A1 emission) for communications with interzone stations in other zones and with zone stations within the same zone.

Itinerant Operation. Operation of a radio station at unspecified locations for varying periods of time.

Land mobile radio service. A mobile service between base stations and land mobile stations, or between land mobile stations.

Land Station. A station in the mobile service not intended to be used while in motion. (As used in this part, the terms land station and base station are interchangeable.)

Line A. An imaginary line within the U.S., approximately paralleling the U.S.-Canadian border, north of which Commission coordination with Canadian authorities in the assignment of frequencies is generally required. It begins at Aberdeen, Washington, running by great circle arc to the intersection of 48° N., 120° W., then along parallel 48° N., to the intersection of 95° W., thence by great circle arc through the southern most point of Duluth, Minn., thence by great circle arc to 45° N., 85° W., thence souuthward along meridian 85° W., to its intersection with parallel 41° N., thence along parallel 41° N. to its intersection with meridian . . . 82° W., thence by great circle arc through the southernmost point of Bangor, Maine, thence by great circle arc through the southernmost point of Searsport, Maine, at which point it terminates.

Line C. An imaginary line in Alaska approximately paralleling the border with Canada, East of which Commission coordination with Canadian authorities in the assignment of frequencies is generally required. It begins at the intersection of 70° N., 144° W., thence by great circle arc to the intersection of 60° N., 143° W., thence by great circle arc so as to include all the Alaskan Panhandle.

Mobile relay station. A base station in the mobile service authorized to retransmit automatically on a mobile service frequency communications which originate on the transmitting frequency of the mobile station.

Mobile Repeater Station. A mobile station authorized to retransmit automatically on a mobile service frequency, communications to or from hand-carried transmitters.

Mobile service. A service of radiocommunication between mobile and base stations, or between mobile stations.

Mobile station. A station in the mobile service intended to be used while in motion or during halts at unspecified points. This includes hand carried transmitters.

Operational Fixed Station. A fixed station, not open to public correspondence, operated by, and for the sole use of those agencies operating their own radiocommunication facilities in the Public Safety, Industrial, Land Transportation, Marine, or Aviation Radio Services. (This includes all stations in the fixed service under this Part.)

Person. An individual, partnership, association, joint stock company, joint venture, trust, corporation, or local government entity.

Radio call box. A transmitter used by the public to request fire, police, medical, road service, or other emergency assistance.

Radiodetermination. The determination of position, or the obtaining of information relating to position, by means of the propagation of radio waves.

Radiofacsimile. A system of radiocommunication for the transmission of fixed images, with or without halftones, with a view to their reproduction in a permanent form.

Radiolocation. Radiodetermination used for purposes other than those of radionavigation.

Radionavigation. Radiodetermination used for the purposes of navigation, including obstruction warning.

Radio teleprinting. Radio transmissions to a printing telegraphic instrument having a signal-actuated mechanism for automatically printing received messages.

Secondary operation. Radio communications which may not cause interference to operations authorized on a primary basis and which are not protected from interference from those primary operations.

Signal booster. A device which automatically amplifies and transmits received base station transmissions with no change in frequency or authorized bandwidth.

SMSA (Standard Metropolitan Statistical Area). A city of 50,000 or more population and the surrounding counties.

Station authorization. A license issued by the Commission for the operation of a radio station.

Telecommand. The transmission of non voice signals for the purpose of remotely controlling a device.

Telemetering (also telemetry). The transmission of non-voice signals for the purpose of automatically indicating or recording measurements at a distance from the measuring instrument.

Travelers' Information Station. A base station in the Local Government Radio Service used to transmit non-commercial, voice information pertaining to traffic and road conditions, traffic hazard and traveler advisories, directions, availability of lodging, rest stops, and service stations, and descriptions of local points of interest.

Trunk (telephony). A one or two-way channel provided as a common traffic artery between switching equipment.

Trunk group. All of the trunks of a given type of characteristic that extend between two switching points.

Trunked radio system. A method of operation in which a number of radio frequency channel pairs are assigned to mobile and base stations in the system for use as a trunk group.

Urbanized Area. A city and the surrounding closely settled territories.

Zone station. A fixed station in the Police Radio Service using radio-telegraphy (A-1 emission) for communications with other similar stations in the same zone and with an interzone station in the same zone.

Subpart B—Public Safety Radio Services

§ 90.15 Scope.

The Public Safety Radio Services include the Local Government, Police, Fire, Highway Maintenance and Forestry-Conservation Radio Services. Rules as to eligibility for licensing, frequencies available, and any special requirements as to each of these radio services are set forth in the following sections.

§ 90.17 Local Government Radio Service.

(a) *Eligibility.* Any territory, possession, State, county, city, town, and similar governmental entity, including a district and an authority, but not including a shcool or park district or authority is eligible to hold authorizations in the Local Government Radio Service to operate radio stations for transmission of communications essential to official activities of the licensee.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Local Government Radio Service, together with the class of station(s) to which they are normally assigned and the specific assignment limitations

which are explained in paragraph (c) of this section.

Local Government Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Kilohertz:		
530	Base (T.I.S.)	23
1610	do	23
2726	Base or mobile	1
Megahertz:		
37.10	do	2
37.18	do	2
37.26	do	2
39.06	Mobile	2, 3
39.10	Base or mobile	2
39.18	do	2
39.50	do	2
39.58	do	2
39.82	do	2
39.90	do	2
39.98	do	2
45.08	do	
45.12	do	
45.16	do	
45.20	do	
45.24	do	
45.28	do	
45.32	do	
45.36	do	
45.40	do	
45.44	do	
45.48	do	
45.52	do	
45.56	do	
45.60	do	
45.64	do	
46.52	do	
46.54	do	
46.56	do	
46.58	do	
72.00 to 76.00	Operational fixed	4
153.740	Mobile	
153.755	do	
153.785	do	
153.800	do	
153.815	do	
153.845	do	
153.860	do	
153.875	do	
153.905	do	
153.920	do	
153.935	do	
153.965	do	
153.980	do	
153.995	do	
154.025	Base or mobile	
154.040	do	5
154.055	do	5
154.085	do	5
154.100	do	5
154.115	do	5
154.45625	Fixed or mobile	6, 19, 20, 21, 22
154.46375	do	7, 19, 20, 21, 22
154.47125	do	7, 20, 21, 22
154.47875	do	19, 20, 21, 22
154.965	Base or mobile	
154.980	do	
154.995	do	
155.025	do	
155.040	do	
155.055	do	
155.085	do	
155.100	do	
155.115	do	
155.145	do	
155.715	do	
155.745	do	
155.760	do	
155.775	do	
155.805	do	
155.820	do	
155.835	do	
155.865	do	
155.880	do	
155.895	do	
155.925	do	
155.940	do	
155.955	do	
155.985	Mobile	

Local Government Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
156.000	do	
156.015	do	
158.745	Base and mobile	
158.760	do	
158.775	do	
158.805	do	
158.820	do	
158.835	do	
158.865	Mobile	
158.880	do	
158.895	do	
158.925	do	
158.940	do	
158.955	do	
173.20375	Fixed or mobile	7, 20, 21, 22
173.2100	do	7, 8, 21, 22
173.2375	do	19, 20, 21, 22
173.2625	do	19, 20, 21, 22
173.2875	do	19, 20, 21, 22
173.3125	do	19, 20, 21, 22
173.3375	do	19, 20, 21, 22
173.3625	do	19, 20, 21, 22
173.3900	do	7, 8, 21, 22
173.39625	do	7, 20, 21, 22
450 to 470	Fixed	10
453.025	Central control, fixed.	11
453.050	Base or mobile	12
453.075	Central control, fixed.	11
453.100	Base or mobile	12
453.125	Central control, fixed.	11
453.150	Base or mobile	12
453.175	Central control, fixed.	11
453.200	Base or mobile	12
453.225	do	
453.250	do	12
453.275	do	
453.300	do	12
453.325	do	
453.350	do	12
453.375	do	
453.400	do	12
453.425	do	
453.450	do	12
453.475	do	
453.500	do	12
453.525	do	
453.550	do	12
453.575	do	
453.600	do	12
453.625	do	
453.650	do	12
453.675	do	
453.700	do	12
453.725	do	
453.750	do	12
453.775	do	
453.800	do	12
453.825	do	
453.850	do	12
453.875	do	
453.900	do	12
453.925	do	
453.950	do	12
453.975	do	
458.025	Radio call boxes, fixed.	11,13
458.050	Mobile	12
458.075	Radio call boxes, fixed.	11, 13
458.100	Mobile	12
458.125	Radio call boxes, fixed.	11, 13
458.150	Mobile	12
458.175	Radio call boxes, fixed.	11, 13
458.200	Mobile	12
458.225	do	
458.250	do	12
458.275	do	
458.300	do	12
458.325	do	
458.350	do	12
458.375	do	

Local Government Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
458.400	do	12
458.425	do	
458.450	do	12
458.475	do	
458.500	do	12
458.525	do	
458.550	do	12
458.575	do	
458.600	do	12
458.625	do	
458.650	do	12
458.675	do	
458.700	do	12
458.725	do	
458.750	do	12
458.775	do	
458.800	do	12
458.825	do	
458.850	do	12
458.875	do	
458.900	do	12
458.925	do	
458.950	do	12
458.975	do	
470 to 512	Base or mobile	14
806 to 821	Mobile	15
851 to 866	Base or mobile	15
952 and above	Operational fixed	16
1427 to 1435	Operational fixed, base or mobile.	17
2450 to 2500	Base or mobile	18
10,550 to 10,680	do	

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b) of this section:

(1) This frequency is shared with the Special Emergency Radio Services and is available for assignment to the official state guard or comparable organization of a State, territory, possession, or the District of Columbia which is shown to be duly created by law and subject to the control of the highest official of the governmental entity involved, and may be used for emergency communications and for essential communications related to training and maintenance of an efficient organization. In addition to base and mobile stations, this frequency may be assigned to fixed stations on a secondary basis to base or mobile stations. Upon a showing of need, the use of a second frequency in the band 2505-3500 kHz may be made available to these organizations through appropriate arrangements with Government agencies for restricted area use on a shared basis with maximum power output, emissions and hours of operation determined on the basis of the technical conditions involved in using the selected frequency in the particular area.

(2) This frequency is shared with the Police Radio Service.

(3) The maximum output power of any transmitter authorized to operate on this frequency shall not exceed 2 watts. Applicants for this frequency need not demonstrate compliance with the frequency coordination provisions of § 90.175.

(4) The frequencies available for use at operational fixed stations in the band 72-76 MHz are listed in § 90.257(a)(1). These frequencies are shared with other services and are available only in accordance with the provisions of § 90.257.

(5) This frequency is not available for assignment in this service in Puerto Rico or the Virgin Islands.

(6) This frequency is assignable for fixed stations to provide emergency callbox service in accordance with § 90.241(a).

(7) The maximum power output of the transmitter may not exceed 50 watts for fixed stations and 1 watt for mobile stations. A1, A2, A9, F1, F2, or F9 emission may be authorized.

(8) For FM transmitters, the sum of the highest modulating frequency in hertz and the amount of the frequency deviation or swing in hertz may not exceed 1700 Hz and the maximum deviation may not exceed 1.2 kHz. For AM transmitters, the highest modulating frequency may not exceed 1200 Hz. The carrier frequency must be maintained within .0005 percent of the center of the frequency band, and the authorized bandwidth may not exceed 3 kHz.

(9) [Reserved.]

(10) The frequencies available for fixed station in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Industrial and Land Transportation Radio Services where they are assigned for land mobile operations.

(11) Available for radio callbox communications related to safety on highways in accordance with the provisions of § 90.241(c).

(12) This frequency is available in this service on a shared basis with all other Public-Safety Radio Services.

(13) Available for medical services mobile operations in the Special Emergency Radio Service in accordance with § 90.53(b)(13).

(14) Subpart L contains rules for assignment of frequencies in the 470-512 MHz band.

(15) Subpart M contains rules for assignment of frequencies in the 806-821 and 851-866 MHz bands.

(16) Assignment of frequencies for operational-fixed stations in the bands 952 MHz and above is governed by Part 94 of this Chapter.

(17) This frequency band is available to stations in this service subject to the provisions of § 90.259.

(18) Available only on a shared basis with stations in other services, and subject to no protection from interference from industrial, scientific, or medical (ISM) devices.

(19) Use of this frequency is limited to stations located at least 120.7 km (75 miles) from the center of any urbanized area of 200,000 or more population (U.S. Census of Population 1970). Operation is on a secondary basis to that of the Power Radio Service.

(20) For FM transmitters, the sum of the highest modulating frequency in Hertz and the amount of the frequency deviation or swing in Hertz may not exceed 2800 Hz and the maximum deviation may not exceed 2.5 kHz. For AM transmitters, the highest modulation frequency may not exceed 2000 Hz. The carrier frequency must be maintained within .0005 percent of the center of the frequency band, and the authorized bandwidth may not exceed 6 kHz.

(21) This frequency is available on a shared basis with the Power, Petroleum, Forest Products, Special Industrial, Business, and Manufacturers Radio Services for remote control and telemetry operations.

(22) Operational fixed stations must employ directional antennas having a front-to-back ratio of at least 20 dB. Omnidirectional antennas having unity gain may be employed for stations communicating with at least three receiving locations separated by 160° of azimuth.

(23) This frequency is available for use by Travelers' Information Stations in accordance with § 90.242.

(d) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service. (See also § 90.253.)

(1) Substitution of frequencies available below 25 MHz may be made in accordance with the provisions of § 90.263.

(2) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(3) Frequencies in the band 73.0-74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. See also § 90.257.

(4) The frequency bands 31.99 to 32.00 MHz, 33.00 to 33.01 MHz, 33.99 to 34.00 MHz, 37.93 to 38.00 MHz, 39.00 to 39.01 MHz, 39.99 to 40.00 MHz and 42.00 to 42.01 MHz, are available for assignment for developmental operation subject to the provisions of Subpart P.

(e) *Limitation on number of frequencies assignable.* Normally only two frequencies or pairs of frequencies in the varied frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with the operation of mobile repeaters in accordance with § 90.247 notwithstanding this limitation.

(2) The frequency 39.06 MHz may be assigned notwithstanding this limitation.

(3) Frequencies in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands, and the frequency bands 903-904 MHz, 904-912 MHz, 918-926 MHz, and 926-927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

§ 90.19 Police Radio Service.

(a) *Eligibility.* Any territory, possession, State, county, city, town, and similar governmental entity including a governmental institution authorized by law to provide its own police protection, is eligible to hold authorizations in the Police Radio Service to operate radio stations for transmission of communications essential to official police activities of the licensee.

(b) *Police zone and interzone stations.* (1) Fixed zone and interzone stations may by authorized in the Police Radio Service. An unlimited number of zone stations may be authorized in a single zone, but only one interzone station will be authorized in any zone. (A zone is normally considered to be a single state.) Request to rezone a state to provide more than one interzone station must be supported by an adequate showing of need based upon the volume of traffic or the necessity for more expeditious handling of traffic. In addition, the request shall include a showing that all licensees of all affected zone stations have been notified and afforded an opportunity to comment on the request.

(2) In addition to the points of communication permitted by § 90.419, zone and interzone stations are authorized to intercommunicate in accordance with the operating procedure prescribed by the Commission. Copies of such procedure are available from the Secretary, Federal Communications Commission, Washington, D.C. 20554.

(c) *International police radiocommunication.* Police radio licensees which are located in close proximity to the borders of the United States may be authorized to communicate internationally. Request for such authority shall be written and signed and submitted in duplicate. The request shall include information as to the station with which communication will be conducted, and the frequency, power, emission, etc., that will be used. If authorized, such international communication must be conducted in accordance with Article 5 of the Inter-Ameri-

can Radio Agreement, Washington, D.C., 1949 which reads as follows:

Article 5. *Police radio stations.* When the American countries authorize their police radio stations to exchange emergency information by radio with similar stations of another country, the following rules shall be applied:

(a) Only police radio stations located close to the boundaries of contiguous countries shall be allowed to exchange this information.

(b) In general, only important police messages shall be handled, such as those which would lose their value, because of slowness and time limitations if sent on other communication systems.

(c) Frequencies used for radiotelephone communications with mobile police units shall not be used for radiotelegraph communications.

(d) Radiotelephone communications shall be conducted only on frequencies assigned for radiotelephony.

(e) Radiotelegraph communications shall be conducted on the following frequencies: 2804 kHz calling, 2808 kHz working, 2812 kHz working, 5195 kHz day calling, 5135 kHz day working, 5140 kHz day working.

(f) The characteristics of police radio stations authorized to exchange information shall be notified to the International Telecommunication Union, Geneva, Switzerland.

(g) The abbreviations contained in Appendix 9 of the Atlantic City Radio Regulations shall be used to the greatest possible extent. Service indications are as follows: "P", priority, for messages that are to be sent immediately, regardless of the number of other messages, are to be transmitted in the order of receipt.

(h) The message shall contain the preamble, address, text, and signature, as follows:

Preamble. The preamble of the message shall consist of the following: the serial number preceded by the letters "NR", service indications, as appropriate; the group count according to standard cable count system; the letters "CK", followed by numerals indicating the number of words contained in the text of the message; office and country of origin (not abbreviations): day, month, and hour of filing;

Address. The address must be as complete as possible and shall include the name of the addressee with any supplementary particulars necessary for immediate delivery of the message;

Text. The text may be either in plain language or code;

Signature. The signature shall include the name and title of the person originating the message.

(d) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Police Radio Service, together with the class of station(s) to which they are normally assigned and the specific assignment limitations which are explained in paragraph (e) of this section:

Police Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Kilohertz:		
1610	Base or mobile	1, 2, 3
1618	do	1, 2, 3
1626	do	1, 2, 3
1634	do	1, 2, 3
1642	do	1, 2, 3
1650	do	2, 3
1658	do	2, 3
1666	do	2, 3
1674	do	2, 3
1682	do	2, 3
1690	do	1, 2, 3
1698	do	1, 2, 3
1706	do	1, 2, 3
1714	do	2, 3
1722	do	2, 3
1730	do	2, 3
2326	do	1, 2
2366	do	1, 2
2382	do	2
2390	do	1, 2
2406	do	2
2414	do	2
2422	do	2
2430	do	2
2442	do	2
2450	do	2
2458	do	2
2466	do	2
2474	do	2
2482	do	2
2490	do	2, 3
2804	Fixed	4
2808	do	4
2812	do	4
5135	do	4, 5
5140	do	4
5195	do	4, 6
7480	do	4, 7, 8
7805	do	4, 7
7935	do	4, 7
Megahertz:		
37.02	Mobile	
37.04	Base or mobile	
37.06	do	
37.08	do	
37.10	do	9
37.12	do	
37.14	do	
37.16	do	
37.18	do	9
37.20	do	
37.22	do	
37.24	do	
37.26	do	9
37.28	do	
37.30	do	
37.32	do	
37.34	Mobile	
37.36	Base or mobile	
37.38	Mobile	
37.40	Base or mobile	
37.42	Mobile	
39.02	Base or mobile	
39.04	do	
39.06	do	9, 10
39.08	do	
39.10	do	9
39.12	do	
39.14	do	
39.16	do	
38.18	do	9
39.20	do	
39.22	do	
39.24	do	
39.26	Mobile	
39.28	Base or mobile	
39.30	Mobile	
39.32	Base or mobile	
39.34	Mobile	
39.36	Base or mobile	
39.38	Mobile	
39.40	Base or mobile	
39.42	do	
39.44	do	
39.46	do	11
39.48	do	
39.50	do	9
39.52	do	
39.54	do	
39.56	do	
39.58	do	9
39.60	do	
39.62	do	
39.64	do	
39.66	Mobile	
39.68	Base or mobile	
39.70	Mobile	
39.72	Base or mobile	
39.74	Mobile	
39.76	Base or mobile	
39.78	Mobile	
39.80	Base or mobile	
39.82	do	9
39.84	do	
39.86	do	
39.88	do	
39.90	do	9
39.92	do	
39.94	do	
39.96	do	
39.98	do	9
42.02	do	2, 3, 12
42.04	do	2, 3, 12
42.06	do	2, 3, 12
42.08	do	2, 3, 12
42.10	do	2, 3, 12
42.12	do	2, 3, 12
42.14	do	2, 3, 12
42.16	do	2, 3, 12
42.18	Mobile	2, 12
42.20	do	2, 12
42.22	do	2, 12
42.24	do	2, 12
42.26	do	2, 12
42.28	do	2, 12
42.30	do	2, 12
42.32	Base or mobile	2, 3, 12
42.34	do	2, 3, 12
42.36	do	2, 3, 12
42.38	do	2, 3, 12
42.40	do	2, 3, 12
42.42	do	2, 3, 12
42.44	do	2, 3, 12
42.46	do	2, 3, 12
42.48	do	2, 3, 12
42.50	do	2, 3, 12
42.52	do	2, 3, 12
42.54	do	2, 3, 12
42.56	do	2, 3, 12
42.58	do	2, 3, 12
42.60	do	2, 3, 12
42.62	do	2, 3, 12
42.64	do	2, 3, 12
42.66	Mobile	2, 12
42.68	do	2, 12
42.70	do	2, 12
42.72	do	2, 12
42.74	do	2, 12
42.76	do	2, 12
42.78	do	2, 12
42.80	Base or mobile	2, 3, 12
42.82	do	2, 3, 12
42.84	do	2, 3, 12
42.86	do	2, 3, 12
42.88	do	2, 3, 12
42.90	do	2, 3, 12
42.92	do	2, 3, 12
42.94	do	2, 3, 12
44.62	do	2, 3, 12
44.66	do	2, 3, 12
44.70	do	2, 3, 12
44.74	do	2, 3, 12
44.78	Mobile	2, 12
44.82	do	2, 12
44.86	do	2, 12
44.90	do	2, 12
44.94	Base or mobile	2, 3, 12
44.98	do	2, 3, 12
45.02	do	2, 3, 12
45.06	do	2, 3, 12
45.10	do	

Police Radio Service Frequency Table— Continued

Frequency or band	Class of station(s)	Limitations
45.14	do	
45.18	do	
45.22	do	
45.26	Mobile	
45.30	do	
45.34	do	
45.38	do	
45.42	Base or mobile	
45.46	do	
45.50	do	
45.54	do	
45.58	do	
45.62	do	
45.66	do	
45.70	do	
45.74	Mobile	
45.78	do	
45.82	do	
45.86	Base or mobile	11
45.90	do	
45.94	do	
45.98	do	
46.02	do	
72.00–76.00	Operational fixed	13
154.650	Mobile	
154.665	Base or mobile	12
154.680	do	12
154.695	do	12
154.710	Mobile	
154.725	Base or mobile	
154.740	do	
154.755	do	
154.770	Mobile	
154.785	Base or mobile	
154.800	do	
154.815	do	
154.830	Mobile	
154.845	Base or mobile	
154.860	do	
154.875	do	
154.890	Mobile	
154.905	Base of mobile	12
154.920	do	12
154.935	do	12
154.950	Mobile	
155.01	Base or mobile	
155.07	do	
155.13	do	
155.19	do	
155.25	do	
155.31	do	
155.370	do	
155.415	do	
155.430	do	
155.445	do	12
155.460	do	12
155.475	do	14
155.490	do	
155.505	do	12
155.520	do	
155.535	do	
155.550	do	
155.565	do	
155.580	do	
155.595	do	
155.610	do	
155.625	do	
155.640	do	
155.655	do	
155.670	do	
155.685	do	
155.700	do	
155.730	do	
155.79	do	
155.85	Mobile	
155.91	do	
155.97	do	
156.03	do	
156.09	do	
156.15	do	
156.210	Base or mobile	
158.730	do	
158.790	do	
158.850	do	
158.910	Mobile	
158.970	do	

Police Radio Service Frequency Table— Continued

Frequency or band	Class of station(s)	Limitations
159.030	do	
159.090	Base or mobile	
159.150	do	
159.210	do	
450–470	Fixed	15
453.050	Base or mobile	16
453.100	do	16
453.150	do	16
453.200	do	16
453.250	do	16
453.300	do	16
453.350	do	16
453.400	do	16
453.450	do	16
453.500	do	16
453.550	do	16
453.600	do	16
453.650	do	16
453.700	do	16
453.750	do	16
453.800	do	16
453.850	do	16
453.900	do	16
453.950	do	16
458.050	Mobile	16
458.100	do	16
458.150	do	16
458.200	do	16
458.250	do	16
458.300	do	16
458.350	do	16
458.400	do	16
458.450	do	16
458.500	do	16
458.550	do	16
458.600	do	16
458.650	do	16
458.700	do	16
458.750	do	16
458.800	do	16
458.850	do	16
458.900	do	16
458.950	do	16
460.025	Base or mobile	
460.050	do	
460.075	do	
460.100	do	
460.125	do	
460.150	do	
460.175	do	
460.200	do	
460.225	do	
460.250	do	
460.275	do	
460.300	do	
460.325	do	
460.350	do	
460.375	do	
460.400	do	
460.425	do	
460.450	do	
460.475	do	
460.500	do	
460.525	do	17, 18, 20
460.550	do	17, 18, 20
462.950	do	17, 19
462.975	do	17, 19
465.025	Mobile	
465.050	do	
465.075	do	
465.100	do	
465.125	do	
465.150	do	
465.175	do	
465.200	Mobile	
465.225	do	
465.250	do	
465.275	do	
465.300	do	
465.325	do	
465.350	do	
465.375	do	
465.400	do	
465.425	do	
465.450	do	
465.475	do	

Police Radio Service Frequency Table— Continued

Frequency or band	Class of station(s)	Limitations
465.500	do	
465.525	do	17, 18, 20
465.550	do	17, 18, 20
467.950	do	17, 19
467.975	do	17, 19
470–512	Base or mobile	21
806–821	Mobile	22
851–866	Base or mobile	22
952 and above	Operational fixed	23
1427 to 1435	Operational fixed, base or mobile.	24
2450 to 2500	Base or mobile	25
10,550 to 10,680	do	

(e) Explanation of assignment limitations appearing in the frequency table of paragraph (d) of this section:

(1) The use of this frequency is on a secondary basis to any Canadian station.

(2) The frequency is available for assignment only in accordance with a geographical assignment plan.

(3) Base stations operating on this frequency and rendering service to state police mobile units may be authorized to use a maximum output power in excess of the maximum indicated in § 90.205 but not in excess of 7500 watts: *Provided,* That such operation is secondary to other stations.

(4) This frequency is available for assignment to zone and interzone stations for use with type A1 emission only and a maximum output power of 750 watts.

(5) This frequency may be assigned to fixed stations in Alaska for point-to-point radiotelephone communications, using type A3 emission with a maximum output power of 750 watts on a secondary basis to zone and interzone stations and further subject to the condition that no harmful interference is caused to the service of any station, which in the discretion of the Commission may have priority on the frequency with which interference results.

(6) This frequency is authorized for use as a calling frequency; however, the transmission of operating signals or a single short radio telegram is permissible on a secondary basis to any calling signals.

(7) This frequency may be used only during that period of time between 2 hours after local sunrise and 2 hours before local sunset.

(8) This frequency may be assigned to fixed stations in the Police Radio Service in Alaska for point-to-point radiotelephone communication, using type A3 emission and a maximum output power of 750 watts.

(9) This frequency is shared with the Local Government Radio Service.

(10) The maximum output power of any transmitter authorized to operate

on this frequency, after June 1, 1956, shall not exceed two watts. Licensees holding a valid authorization as of June 1, 1956, for base or mobile station operation on this frequency, with a power in excess of two watts, may continue to be authorized for such operation without regard to this power limitation.

(11) This frequency is reserved for assignment to stations for intersystem operations only: *Provided, however,* That licensees holding a valid authorization to use this frequency for local base or mobile operations as of June 1, 1956, may continue to be authorized for such use.

(12) This frequency is reserved primarily for assignment to state police licensees. Assignments to other police licensees will be made only where the frequency is required for coordinated operation with the state police system to which the frequency is assigned. Any request for such assignment must be supported by a statement from the state police system concerned indicating that the assigment is necessary for coordination of police activities.

(13) The frequencies available for use at operational fixed stations in the band 72-76 MHz are listed in § 90.257(a)(1). These frequencies, are shared with other services and are available only in accordance with the provisions of § 90.257.

(14) This frequency is available nationwide for use in police emergency communications networks operated under statewide law enforcement emergency communications plans. Operations authorized on this frequency which are not in accordance with this limitation may continue until January 1, 1985.

(15) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Industrial and Land Transportation Radio Services where they are assigned for land mobile operations.

(16) This frequency is available in this service on a shared basis with all other Public-Safety Radio Services.

(17) This frequency is available for assignment, without regard to the coordination requirement of § 90.175 for the development and operation of nonvoice systems. F2, F4, or F9 emission will be authorized for use of this frequency, except that telemetry, telecommand, or automatic vehicle location systems may not be operated. F3 emission may also be authorized when required to supplement nonvoice operation. Transmitters type-accepted under this part for use of F3 emission may also be used for nonvoice operation on this frequency, provided that the audio keying signal is passed through the low pass audio frequency filter required in the transmitter for F3 emission, and provided further that the transmitter is so adjusted and operated that the instantaneous frequency deviation does not exceed the maximum value allowed for F3 emission. Operation on this frequency is exempted from the station identification requirements of § 90.425.

(18) This frequency is shared until March 1, 1986, with Fire Radio Service Licensees authorized for its use prior to July 16, 1974, and operations in the Police Radio Service are on a secondary basis to such Fire Radio Service use.

(19) This frequency is available in this service only for systems licensed in this service prior to April 16, 1976, until March 1, 1986. Use of this frequency is shared with, and is on a primary basis to operations by licensees in the Special Emergency Radio Service.

(20) Until March 1, 1986, use of this frequency is on a secondary basis to Special Emergency licensees authorized prior to April 16, 1976.

(21) Subpart L contains rules for assignment of frequencies in the 470-512 MHz band.

(22) Subpart M contains rules for assignment of frequencies in the 806-821 and 851-866 MHz bands.

(23) Assignment of frequencies for operational-fixed stations in the bands 952 MHz and above is governed by Part 94 of this Chapter.

(24) This frequency band is available to stations in this service subject to the provisions of § 90.259.

(25) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific or medical (ISM) devices.

(f) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service. (See also § 90.253.)

(1) Substitution of frequencies available below 25 MHz may be made in accordance with the provisions of § 90.263.

(2) The frequencies 27.235, 27.245, 27.255 27.265, and 27.275 MHz are available in accordance with § 90.255.

(3) Frequencies in the band 73.0-74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted.

(4) The frequency bands 31.99 to 32.00 MHz 33.00 to 33.01 MHz, 33.99 to 34.00 MHz, 37.93 to 38.00 MHz, 39.00 to 39.01 MHz, 33.99 to 40.00 MHz and 42.00 to 42.01 MHz are available for assignment for developmental operation subject to the provisions of Subpart P.

(g) *Limitation on number of frequencies assignable.* Normally only one base and one mobile station frequency, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with operation of mobile repeaters in accordance with § 90.247, notwithstanding this limitation.

(2) The frequency 39.06 MHz may be assigned notwithstanding this limitation.

(3) A licensee may use, without specific authorization from the Commission any mobile service frequency between 40 MHz and 952 MHz listed in paragraph (d) of this section for communications in connection with physical surveillance, stakeouts, raids, and other such activities. Such use shall be on a secondary basis to operations of licensees regularly authorized on the assigned frequencies. The maximum power that may be used for such communications is 2 watts output. Other provisions of this part, including the requirements for station identification, shall apply.

(4) In addition to the frequencies assigned for mobile service operation, one base station frequency above 152 MHz may be assigned as a common frequency to all licensees in a particular area to permit intersystem communication between base stations or mobile stations or both. This frequency, use will not be authorized in any area where all available frequencies are required for independent systems.

(5) Frequencies in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands, and the frequency bands, 903-904 MHz, 904-912 MHz, 918-926 MHz, and 926-927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

§ 90.21 Fire Radio Service.

(a) *Eligibility.* Any territory, possession, state, county, city, town, or similar governmental entity, and persons or organizations charged with specific fire protection activities are eligible to hold authorizations in the Fire Radio Service to operate radio stations for transmission of communications essential to official fire activities of the licensee. Applications from persons or organizations other than governmental entities must be accompanied by a statement from the governmental entity having legal jurisdiction over the area to be served, supporting the request.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Fire Radio Service, together with the class of station(s) to which they are normally assigned and the specific assignment limitations which are explained in paragraph (c) of this section:

Fire Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Kilohertz: 1630	Base or mobile	
Megahertz:		
33.42	Mobile or fixed	1
33.44	Base or mobile	
33.46	Mobile	
33.48	Base or mobile	
33.50	Mobile	
33.52	Base or mobile	
33.54	Mobile	
33.56	Base or mobile	
33.58	Mobile	
33.60	Base or mobile	
33.62	Mobile	
33.64	Base or mobile	
33.66	Mobile	
33.68	Base or mobile	
33.70	do	
33.72	do	
33.74	do	
33.76	do	
33.78	do	
33.80	do	
33.82	do	
33.84	do	
33.86	do	
33.88	do	
33.90	do	
33.92	do	
33.94	do	
33.96	do	
33.98	do	
45.88		2
46.06	do	
46.08	do	
46.10	do	
46.12	do	
46.14	do	
46.16	do	
46.18	do	
46.20	do	
46.22	Mobile	
46.24	do	
46.26	do	
46.28	do	
46.30	Mobile or fixed	1
46.32	Mobile	
46.34	do	
46.36	Base or mobile	
46.38	do	
46.40	do	
46.42	do	
46.44	do	
46.46	do	
46.48	do	
46.50	do	
72.00 to 76.00	Operational fixed	3
153.77	Mobile	
153.83	Mobile or fixed	1
153.890	Mobile	
153.950	do	
154.010	do	
154.070	do	4
154.130	Base or mobile	4
154.145	do	4
154.160	do	4
154.175	do	4
154.190	do	4
154.205	do	4
154.220	do	4
154.235	do	4
154.250	do	4
154.265	do	2, 4
154.280	do	2, 4
154.295	do	2, 4
154.310	do	4
154.325	do	4

Fire Radio Service Frequency Table— Continued

Frequency or band	Class of station(s)	Limitations
154.340	do	4
154.355	do	4
154.370	do	4
154.385	Base or mobile	4
154.400	do	4
154.415	do	4
154.430	do	4
154.445	do	4
166.250	do	5
170.150	do	5
450.470	Fixed	6
453.050	Base or mobile	7
453.100	do	7
453.150	do	7
453.200	do	7
453.250	do	7
453.300	do	7
453.350	do	7
453.400	do	7
453.450	do	7
453.500	do	7
453.550	do	7
453.600	do	7
453.650	do	7
153.700	do	7
453.750	do	7
453.800	do	7
453.850	do	7
453.900	do	7
453.950	do	7
458.050	Mobile	7
458.100	do	7
458.150	do	7
458.200	do	7
458.250	do	7
458.300	do	7
458.350	do	7
458.400	do	7
458.450	do	7
458.500	do	7
458.550	do	7
458.600	do	7
458.650	do	7
458.700	do	7
458.750	do	7
458.800	do	7
458.850	do	7
458.900	do	7
458.950	do	7
460.525	do	8
460.550	do	8
460.575	do	
460.600	do	
465.625	do	
465.525	do	8
465.550	do	8
465.575	do	
465.600	do	
465.625	do	
470–512	Base or mobile	9
806–821	Mobile	10
851–866	Base or mobile	10
952 and above	Operational fixed	11
1427 to 1435	Operational fixed, base or mobile	12
2450 to 2500	Base or mobile	13
10,550 to 10,680	do	

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b) of this section:

(1) The maximum output power of any transmitter authorized to operate on this frequency shall not exceed 10 watts.

(2) This frequency is reserved for assignment to stations in this service for intersystem operations only and these operations must be primarily base-mobile communications.

(3) The frequencies available for use at operational fixed stations in the band 72–76 MHz are listed in §90.257(a)(1). These frequencies are shared with other services and are available only in accordance with the provisions of § 90.257.

(4) This frequency is not available for assignment to stations in this service in Puerto Rico or the Virgin Islands.

(5) This frequency may be assigned to stations in the Fire Radio Service, only at points within 240 km. (150 mi.) of New York, N.Y.

(6) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Industrial and Land Transportation Radio Services where they are assigned for land mobile operations.

(7) This frequency is available in this service on a shared basis with all other Public-Safety Radio Services.

(8) This frequency is available to Fire Radio Service licensees authorized prior to July 16, 1974, until March 1, 1986, on a shared basis with, and primary to operations in the Police Radio Service.

(9) Subpart L contains rules for assignment of frequencies in the 470–512 MHz band.

(10) Subpart M contains rules for assignment of frequencies in the 806–821 and 851–866 MHz bands.

(11) Assignment of frequencies for operational-fixed stations in the bands 952 MHz and above is governed by Part 94 of this Chapter.

(12) This frequency band is available to stations in this service subject to the provisions of § 90.259.

(13) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific, or medical (ISM) devices.

(d) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service. (See also § 90.253.)

(1) Substitution of frequencies available below 25 MHz may be made in accordance with the provisions of § 90.263.

(2) The frequencies 27.235, 27.245, 27.255, 27.265 and 27.275 MHz are available in accordance with § 90.255.

(3) Frequencies in the band 73.0–74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(4) The frequency bands 31.99 to 32.00 MHz, 33.00 to 33.01 MHz, 33.99 to 34.00 MHz, 37.93 to 38.00 MHz, 39.00 to 39.01 MHz, 39.99 to 40.00 MHz and 42.00 to 42.01 MHz are available for assignment for developmental op-

eration subject to the provisions of Subpart P.

(e) *Limitation on number of frequencies assignable.* Normally only two frequencies or pairs of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with the operation of mobile repeaters in accordance with § 90.247, notwithstanding this limitation.

(2) The assignment of an additional frequency or frequencies may be authorized notwithstanding this limitation for common, intra-county, intra-fire-district, or intrastate fire coordination operations. The frequency or frequencies requested must be in accordance with a frequency utilization plan, for the area involved, on file with the Commission.

(3) Frequencies in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands, and the frequency bands 903-904 MHz, 904-912 MHz, 918-926 MHz, and 926-927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

§ 90.23 Highway Maintenance Radio Service.

(a) *Eligibility.* Any territory, possession, State, county, city, town, and similar governmental entity is eligible to hold authorizations in the Highway Maintenance Radio Service to operate stations for transmission of communications essential to official highway activities of the licensee.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Highway Maintenance Radio Service, together with the class of station(s) to which they are normally assigned and the specific assignment limitations which are explained in paragraph (c) of this section:

Highway Maintenance Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Megahertz:		
33.02	Base or mobile	1
33.06	do	1
33.10	do	1
37.90	do	1
37.92	do	
37.94	do	1
37.96	do	
37.98	do	1
45.68	do	
45.72	do	
45.76	do	
45.80	do	
45.84	do	
47.02	do	2
47.04	do	2
47.06	do	2
47.08	do	2
47.10	do	2
47.12	do	2
47.14	do	2
47.16	do	2
47.18	do	2
47.20	do	2
47.22	do	2
47.24	do	2
47.26	do	2
47.28	do	2
47.30	do	2
47.32	do	2
47.34	do	2
47.36	do	2
47.38	do	2
47.40	do	2
72.00 to 76.00	Operaional fixed	3
150.995	Base or mobile	4
151.010	do	4
151.025	do	4
151.040	do	4
151.055	do	4
151.070	do	4
151.085	do	4
151.100	do	4
151.115	do	4
151.130	do	4
156.045	Mobile	
156.060	do	
156.075	do	
156.105	Base or mobile	
156.120	do	
156.135	do	
156.165	do	5
156.180	do	5
156.195	do	5
156.225	do	5
156.240	do	5
157.050	do	6
157.110	do	6
158.985	Mobile	5
159.000	do	5
159.015	do	5
159.045	do	5
159.060	do	5
159.075	do	5
159.105	Base or mobile	5
159.120	do	5
159.135	do	5
159.165	do	5
159.180	do	
159.195	do	
450.470	Fixed	7
453.050	Base or mobile	8
453.100	do	8
453.150	do	8
453.200	do	8
453.250	do	8
453.300	do	8
453.350	do	8
453.400	do	8
453.450	do	8
453.500	do	8
453.550	do	8
453.600	do	8
453.650	do	8
453.700	Base or mobile	9
453.750	do	8
453.800	do	8
453.850	do	8
453.900	do	8
453.950	do	8
458.050	Mobile	8
458.100	do	8
458.150	do	8
458.200	do	8
458.250	do	8
458.300	do	8
458.350	do	8
458.400	do	8
458.450	do	8
458.500	do	8
458.550	do	8
458.600	do	8
458.650	do	8
458.700	do	8
458.750	do	8
458.800	do	8
458.850	do	8
458.900	do	8
458.950	do	8
470-512	Base or mobile	9
806-821	Mobile	10
851-866	Base or mobile	10
952 and above	Operational fixed	11
1427-1435	Operational fixed, base or mobile.	12
2450-2500	Base or mobile	13
10,550 to 10,680	do	

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b) of this section:

(1) This frequency is shared with the Special Emergency Radio Service.

(2) This frequency will be assigned only in accordance with a geographical assignment plan and is reserved primarily for assignment to Highway Maintenance systems operated by states. The use of this frequency by other Highway maintenance licensees will be authorized only where such use is necessary to coordinate activities with the particular state to which the frequency is assigned. Any request for such use must be supported by a statement from the state concerned.

(3) The frequencies available for use at operational fixed stations in the band 72-76 MHz are listed in § 90.257(a)(1). These frequencies, are shared with other services and are available only in accordance with the provisions of § 90.257.

(4) This frequency is not available for assignment to stations in the Highway Maintenance Radio Service located in Puerto Rico and the Virgin Islands.

(5) This frequency is reserved for assignment for use in highway maintenance systems operated by licenses other than States.

(6) This frequency is only assigned to Highway Maintenance stations licensed for its use prior to April 28, 1952. Such use may continue on a secondary basis to any government or non-government radio operation.

(7) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Industrial and Land Transportation Radio Services where they are assigned for land mobile operations.

(8) This frequency is available in this service on a shared basis with all other Public-Safety Radio Services.

(9) Subpart L contains rules for assignment of frequencies in the 470-512 MHz band.

(10) Subpart M contains rules for assignment of frequencies in the 806-821 and 851-886 MHz bands.

(11) Assignment of frequencies for operational-fixed stations in the bands 952 and above is governed by Part 94 of this Chapter.

(12) This frequency band is available to stations in this service subject to the provisions of § 90.259.

(13) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific, or medical (ISM) devices.

(d) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service. (See also § 90.253.)

(1) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(2) The frequency bands 31.99 to 32.00 MHz, 33.00 to 33.01 MHz, 33.00 to 33.01 MHz, 33.99 to 34.00 MHz, 37.93 to 38.00 39.00 to 39.01 MHz, 39.99 to 40.00 MHz and 42.00 to 42.01 MHz are available for assignment for developmental operation subject to the provisions of Subpart P.

(3) Frequencies in the band 73.0-74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(e) *Limitation on number of frequencies assignable.* Normally only two frequencies or pairs of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with the operation of mobile repeaters in accordance with § 90.247, notwithstanding this limitation.

(2) Frequencies in the 25-50 MHz, 150-170 MHz and 450-512 MHz bands, and the frequency bands 903-904 MHz, 904-912 MHz 918-926 MHz and 926-927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

§ 90.25 Forestry-Conservation Radio Service.

(a) *Eligibility.* Any territory, possession, State, county, city, town, and similiar governmental entity, or persons or organizations charged with specific forestry-conservation activities are eligible to hold authorizations in the Forestry-Conservation Radio Service to operate radio stations for transmission of communications essential to official forestry-conservation activities of the licensee. Application from persons or organizations other than governmental entities must be accompanied by a statement from the governmental entity having legal jurisdiction over the area to be served, supporting the request.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Foresty-Conservation Radio Service, together with the class of station(s) to which they are normally assigned and the specific assignment limitations which are explained in paragraph (c) of this section:

Forestry-Conservation Radio Service Frequency Table

Frequency or band	Class of stations(s)	Limitations
Kilohertz:		
2212	Base or mobile	1
2226	do	1
2236	do	1
2244	do	1
Megahertz:		
30.86	do	2
30.90	do	2
30.94	do	2
30.98	do	2
31.02	do	2
31.06	do	2, 3, 4
31.10	do	2, 3, 4
31.14	do	2, 3, 4
31.18	do	3, 4
31.22	do	3, 4
31.26	do	3, 4
31.30	do	3, 4
31.34	do	3, 4
31.38	do	3, 4
31.42	do	3, 4
31.46	do	3, 4
31.50	do	3, 4
31.54	do	3, 4
31.58	do	3, 4
31.62	do	3, 4
31.66	do	3, 4
31.70	do	3, 4
31.74	do	3, 4
31.78	do	3, 4
31.82	do	3, 4
31.86	do	3, 4
31.90	do	3, 4
31.94	do	3, 4
31.98	do	3, 4
44.64	do	
44.68	do	
44.72	do	
44.76	do	
44.80	do	
44.84	do	
44.88	do	
44.92	do	
44.96	do	
45.00	do	
45.04	do	
72.00 to 76.00	Operational fixed	5
151.145	Base or mobile	6
151.160	do	6
151.175	do	6
151.190	do	6
151.205	do	6
151.220	do	6
151.235	do	6
151.250	do	6
151.265	do	6
151.280	do	6
151.295	do	6
151.310	do	6
151.325	do	6
151.340	do	6
151.355	do	6
151.370	do	6
151.385	do	6
151.400	do	6
151.415	do	6
151.430	do	6
151.445	do	6
151.460	do	6
151.475	do	6
151.490	do	6, 7
159.225	do	
159.240	do	8
159.255	do	8
159.270	do	8
159.285	do	8
159.300	do	8
159.315	do	8
159.330	do	8
159.345	do	8
159.360	do	8
159.375	do	8
159.390	do	8
159.405	do	8
159.420	do	8
159.435	do	8
159.450	do	
159.465	do	
170.425	do	4, 9, 10
170.475	do	4, 9, 11
170.575	do	4, 9, 10
171.425	do	4, 9, 11
171.475	do	4, 9, 12
171.575	do	4, 9, 11
172.225	do	4, 9, 10
172.275	do	4, 11, 12
172.375	do	4, 9, 10
450.470	Fixed	13
453.050	Base or mobile	14
453.100	do	14
453.150	do	14
453.200	do	14
453.250	do	14
453.300	do	14
453.350	do	14
453.400	do	14
453.450	do	14
453.500	do	14
453.550	do	14
453.600	do	14
453.650	do	14
453.700	do	14
453.750	do	14
453.800	do	14
453.850	do	14
453.900	do	14
453.950	do	14
458.050	Mobile	14
458.100	do	14
458.150	do	14
458.200	do	14
458.250	do	14
458.300	do	14
458.350	do	15
458.400	do	14
458.450	do	14
458.500	do	14
458.550	do	14
458.600	do	14
458.650	do	14
458.700	do	14
458.750	do	14
458.800	do	14
458.850	do	14
458.900	do	14
458.950	do	14
470.512	Base or mobile	15
806 to 821	Mobile	16
851 to 866	Base or Mobile	16
952 and above	Operational fixed	17
1427 to 1435	Operational fixed, base or mobile.	18
2450 to 2500	Base or mobile	19
10,550 to 10,680	do	

Forestry-Conservation Radio Service Frequency Table—Continued

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b) of this section:

(1) The use of this frequency is on a secondary basis to any Canadian station.

(2) This frequency is shared with the Motor Carrier Radio Service.

(3) This frequency is available for assignment only in accordance with a geographical assignment plan. This frequency may be used for conservation activities on a secondary basis to any station using the frequency for forest fire prevention, detection, and suppression.

(4) This frequency is reserved primarily for assignment to state licensees. Assignments to other licensees will be made only where the frequency is required for coordinated operation with the State system to which the frequency is assigned. Any request for such assignment must be supported by a statement from the State system concerned, indicating that the assignment is necessary for coordination of activities.

(5) The frequencies available for use at operational-fixed stations in the band 72-76 MHz are listed in § 90.257(a)(1). These frequencies are shared with other services and are available only in accordance with the provisions of § 90.257.

(6) This frequency is not available for assignment to stations in this service located in Puerto Rico or the Virgin Islands.

(7) This frequency is shared with stations in the Special Industrial Radio Service and evidence of interservice coordination is required.

(8) This frequency is shared with the Special Industrial Radio Service in Puerto Rico and the Virgin Islands. All applications for the assignment of a new frequency or to change existing facilities in such a manner as to require frequency coordination as specified in § 90.175 for stations in Puerto Rico or the Virgin Islands, shall be accompanied by evidence of interservice frequency coordination.

(9) This frequency will be assigned only to licensees directly responsible for the prevention, detection, and suppression of forest fires, on a secondary basis to any U.S. Government station.

(10) This frequency will be assigned for use only in areas west of the Mississippi River.

(11) This frequency will be assigned for use only in areas east of the Mississippi.

(12) In addition to agencies responsible for forest fire prevention, detection, and suppression, this frequency may be assigned to conservation agencies which do not have forest fire responsibilities on a secondary basis to any U.S. Government stations, *Provided*, That such assignment is necessary to permit mobile relay operation by such agencies.

(13) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Industrial and Land Transportation Radio Services where they are assigned for land mobile operations.

(14) This frequency is available in this service on a shared basis with all other Public Safety Services.

(15) Subpart L contains rules for assignment of frequencies in the 470-512 MHz band.

(16) Subpart M contains rules for assignment of frequencies in the 806-821 and 851-866 MHz bands.

(17) Assignment of frequencies for operational-fixed stations in the bands 952 MHz and above is governed by Part 94 of this Chapter.

(18) This frequency band is available to stations in this service subject to the provisions of § 90.259.

(19) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific, or medical (ISM) devices.

(d) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service. (See also § 90.253.)

(1) Substitution of frequencies available below 25 MHz may be made in accordance with the provisions of § 90.263.

(2) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(3) Frequencies in the band 73.0-74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(4) The frequency bands 31.99 to 32.00 MHz, 33.00 to 33.01 MHz, 33.99 to 34.00 MHz, 37.93 to 38.00 MHz, 39.00 to 39.01 MHz, 39.99 to 40.00 MHz, and 42.00 to 42.01 MHz are available for assignment for developmental operation subject to the provisions of Subpart P.

(e) *Limitation on number of frequencies assignable.* Normally only two frequencies or pairs of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with the operation of mobile repeaters in accordance with § 90.247 notwithstanding this limitation.

(2) Frequencies in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands, and the frequency bands 903-904 MHz, 904-912 MHz, 918-926 MHz, and 926-927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

Subpart C—Special Emergency Radio Service

§ 90.33 Scope.

The Special Emergency Radio Service covers the licensing of the radio communications of the following categories of activities: Medical services, rescue organizations, veterinarians, disaster relief organizations, school buses, beach patrols, establishments in isolated areas, communications standby facilities, and emergency repair of public communications facilities. Rules as to eligibility for licensing, permissible communication, classes and number of stations, and any special requirements as to each of these categories are set forth in the following sections. Frequencies available for these categories of services are shown in a separate frequency table.

§ 90.35 medical services.

(a) *Eligibility.* The following persons are eligible to hold authorization to operate radio stations for the delivery or rendition of medical services to the public and on a secondary basis, for transmission of messages related to the efficient administration of organizations and facilities engaged in medical services operations.

(1) Hospital establishments that offer services, facilities, and beds for use beyond 24 hours in rendering medical treatment.

(2) Institutions and organizations regularly engaged in providing medical services through clinics, public health facilities, and similar establishments.

(3) Ambulance companies regularly engaged in providing medical ambulance services.

(4) Rescue organizations for the limited purpose of participation in providing medical services.

(5) Associations comprised of two or more of the organizations eligible under paragraph (a) (1), (2), (3), and (4) of this section, for the purpose of active participation in and direct operational control of the medical services communication activities of such organizations.

(6) Physicians, schools of medicine, and oral surgeons, which may include an association of physicians or oral surgeons in a locality (such as a county, city, or metropolitan area), which is chartered by a national or

State association of physicians or oral surgeons, *provided,* That such association shall be subject fully to the provisions of § 90.179 governing the cooperative use of radio stations and *provided further,* That stations authorized to such associations may be used only for messages related to the medical activities of its members. This does not include associations whose primary purpose is to provide a communications service.

(7) Governmental entities and governmental agencies for their own medical activities.

(8) Governmental entities and governmental agencies for providing medical services communications to other eligible persons through direct participation in and direct operational control of the system, such as through central dispatch service.

(b) *Communications plans.* In the event that the applicant is participating in an area-wide medical communications plan, the plan may be filed with the application. A listing of current plans will be made available upon request to applicants and other interested parties in connection with the development of radio communications systems. In addition, copies of plans will be maintained for public inspection in the license records of the Commission's Washington, D.C., offices.

(c) *Class and number of stations available.* (1) The number and classes of stations which may be authorized will depend upon the frequencies selected and the demonstrated system requirements.

(2) Subject to the provisions of § 90.421, communication units of a mobile station authorized under this section may be installed in a vehicle or be handcarried for use by any person with whom cooperation or coordination is required for medical services activities.

§ 90.37 Rescue organizations.

(a) *Eligibility.* Persons or organizations operating a rescue squad are eligible to hold authorizations to operate radio stations for transmission of messages pertaining to the safety of life or property and urgent messages necessary for the rendition of an efficient emergency rescue service.

(b) *Class and number of stations available.* Each rescue squad will be authorized to operate one base station, and a number of mobile units (excluding hand carried mobile units) not exceeding the number of vehicles actually used in emergency rescue operations. In addition, each rescue squad will be authorized to operate a number of hand carried mobile units not exceeding two such units for each radio equipped vehicle actually used in emergency rescue operations.

§ 90.39 Veterinarians.

(a) *Eligibility.* A veterinarian, veterinary clinic, or a school of veterinary medicine is eligible to hold authorizations to operate radio stations for the transmission of messages pertaining to the care and treatment of animals.

(b) *Class and number of stations available.* Each licensee may be authorized to operate one base station and two mobile units. Additional base stations or mobile units will be authorized only on a showing of need.

§ 90.41 Disaster relief organizations.

(a) *Eligibility.* Organizations established for disaster relief purposes having an emergency radio communications plan are eligible to hold authorizations to operate radio stations for the transmission of communications relating to the safety of life or property, the establishment and maintenance of temporary relief facilities, and the alleviation of the emergency situation during periods of actual or impending emergency, or disaster, and until substantially normal conditions are restored.

(b) *Special eligibility showing.* The initial application from a disaster relief organization shall be accompanied by a copy of the charter or other authority under which the organization was established and a copy of its communications plan. The plan shall fully describe the operation of the radio facilities and describe the method of intergration into other communications facilities which normally would be available to assist in the alleviation of the emergency condition.

(c) *Class and number of stations available.* Disaster relief organizations may be authorized to operate the number of base, mobile, and fixed stations required.

§ 90.43 School buses.

(a) *Eligibility.* Persons or organizations operating school buses on a regular basis over regular routes are eligible to hold authorizations to operate radio stations for the transmission of messages pertaining to either the efficient operation of the school bus service or the safety or general welfare of the students they are engaged in transporting.

(b) *Class and number of stations available.* Each school bus operator may be authorized to operate one base station and a number of mobile units not in excess of the total of the number of buses and maintenance vehicles regularly engaged in the school bus operation. Additional base stations or mobile units will be authorized only in exceptional circumstances when the applicant can show a specific need.

§ 90.45 Beach Patrols.

(a) *Eligibility.* Persons or organizations operating beach patrols having responsibility for life-saving activities are eligible to hold authorizations to operate radio stations for the transmission of messages required for the safety of life or property.

(b) *Class and number of stations available.* Eligibles in this category will be authorized to operate base, mobile, and fixed stations in the stated area served by the beach patrol. The number of such stations requested shall be justified.

§ 90.47 Establishment in isolated areas.

(a) *Eligibility.* Persons or organizations maintaining establishment in isolated areas where public communications facilities are not available and where the use of radio is the only feasible means of establishing communication with a center of population, or other point from which emergency assistance might be obtained if needed, are eligible to hold authorizations to operate radio stations for the transmission of messages only during an actual or impending emergency endangering life, health or property for the transmission of essential communications arising from the emergency. The transmission of routine or non-emergency communications is strictly prohibited.

(b) *Special eligibility showing.* The initial application requesting a station authorization for an establishment in an isolated area shall be accompanied by a statement describing the status of public communication facilities in the area of the applicant's establishment; the results of any attempts the applicant may have made to obtain public communication service, and; in the event radio communications service is to be furnished under subparagraph (d)(2) of this section, a copy of the agreement involved must be submitted.

(c) *Class and number of stations available.* Persons or organizations in this category may be authorized to operate not more than one fixed station at any isolated establishment and not more than one fixed station in a center of population.

(d) *Communication service rendered and received.* (1) The licensee of a station at any establishment in an isolated area shall make the communication facilities of such station available at no charge to any person desiring the transmission of any communication permitted by paragraph (a) of this section.

(2) For the purpose of providing the communications link desired the licensee of a station at an establishment in an isolated area either may be the licensee of a similar station at another location or may obtain communication

service under a mutual agreement from the licensee of any station in the Public Safety or Special Emergency Radio Services or any other station which is authorized to communicate with the special emergency fixed station.

§ 90.49 Communications standby facilities.

(a) *Eligibility.* A communications common carrier operating communications circuits that normally carry essential communication of such a nature that their disruption would endanger life or public property is eligible to hold authorizations for standby radio facilities for the transmission of messages only during periods when the normal circuits are inoperative due to circumstances beyond the control of the user. During such periods the radio facilities may be used to transmit any communication which would be carried by the regular circuit.

(b) *Special eligibility showing.* Initial applications for authorization to operate a standby radio facility must include a statement describing radio communication facilities desired, the proposed method of operation, a description of the messages normally being carried, and an explanation of how their disruption will endanger life or public property.

(c) *Class and number of stations available.* Eligibles in this category may be authorized to operate the number of fixed stations as standby radio facilities required. Any such fixed station may be licensed for operation either at a specified location or for itinerant operation. In the latter case the area of desired operation must be specified by the applicant.

§ 90.51 Emergency repair of public communications facilities.

(a) *Eligibility.* Communications common carriers are eligible in this service for radio facilities to be used in effecting expeditious repairs to interruption of public communications facilities where such interruptions have resulted in disabling intercity circuits or service to a multiplicity of subscribers in a general area. Stations authorized under this section may be used only when no other means of communication is readily available, for the transmission of messages relating to the safety of life and property and messages which are necessary for the efficient restoration of the public communication facilities which have been disrupted.

(b) *Class and number of stations available.* Eligibles in this category may be authorized to operate the number of base, mobile and fixed stations required.

§ 90.53 Frequencies available.

(a) The following table indicates frequencies available for assignment to stations in the Special Emergency Radio Service, together with the class of station(s) to which they are normally assigned and the specific assignment limitations which are explained in paragraph (b) of this section. (Frequencies below 450 MHz indicated for base or mobile stations may be authorized to fixed stations on a secondary basis to stations in the mobile service):

Special Emergency Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Kilohertz:		
2000-3000	Fixed	1
2726	Base or mobile	2
3201	do	
Megahertz:		
33.02	do	3
33.04	do	
33.06	do	3
33.08	do	
33.10	do	3
35.64	Base	4
35.68	do	4
37.90	Base or mobile	3
37.94	do	3
37.98	do	3
43.64	Base	4
43.68	do	4
45.92	Base or mobile	
45.96	do	
46.00	do	
46.04	do	
47.42	do	5
47.46	do	
47.50	do	
47.54	do	
47.58	do	
47.62	do	
47.66	do	
72.00 to 76.00	Operational fixed	6
150.775	Mobile	7
150.790	do	7
152.0075	Base	4
155.160	Base or mobile	8
155.175	do	8
155.205	do	8
155.220	do	
155.235	do	8
155.265	do	8
155.280	do	
155.295	do	8
155.325	do	8, 9
155.340	do	10
155.355	do	8, 9
155.385	do	8, 9
155.400	do	8, 9
155.450	Base	4, 11
155.250	do	4
450 to 470	Fixed	12
458.025	Mobile	13, 14
458.075	do	13, 14
458.125	do	13, 14
458.175	do	13, 14
460.525	Base or mobile	16, 17
460.550	do	16, 17
462.950	do	16, 18
462.975	do	16, 18
463.000	do	14, 15, 19
463.025	do	14, 15, 19
463.050	do	14, 15, 19
463.075	do	14, 15, 20
463.100	do	14, 15, 20
463.125	do	14, 15, 20
463.150	do	14, 15, 20
463.175	do	14, 15, 20
465.525	Mobile	16, 17
465.550	do	16, 17
467.950	do	16, 18
462.975	do	16, 18
468.000	do	14, 15, 16, 18
468.025	do	14, 15, 19

Special Emergency Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
468.050	do	14, 15, 19
468.075	do	14, 15, 20
468.100	do	14, 15, 20
468.125	do	14, 15, 20
468.150	do	14, 15, 20
468.175	do	14, 15, 20
806 to 821	do	21
851 to 866	Base or mobile	21
952 and above	Operational fixed	22
1427 to 2435	Operational fixed, base or mobile.	23
2450 to 2500	Base or mobile	24
10,550 to 10,680	do	

(b) Explanation of assignment limitations appearing in the frequency table of paragraph (a) of this section:

(1) Appropriate frequencies in the band 2000-3000 kHz which are designated in Part 83 of this chapter as available to Public Ship Stations for telephone communications with Public Coast Stations may be assigned on a secondary basis to Special Emergency fixed stations for communication with Public Coast Stations only, provided such stations are located in the United States and the following conditions are met:

(i) That such fixed station is established pursuant to the eligibility provisions of § 90.47 and that the isolated area involved in an island or other location not more than 480 km (300 statute miles) removed from the desired point of communication and isolated from that point by water.

(ii) That evidence is submitted showing that an arrangement has been made with the coast station licensee for the handling of emergency communications permitted by § 81.302(b) and § 90.47(d) of this chapter.

(iii) That operation of the Special Emergency fixed station shall at no time conflict with any provision of Part 83 of this chapter and further, that such operation in general shall conform to the practices employed by Public Ship Stations for radiotelephone communication with the same Public Coast Station.

(2) This frequency is shared with the Local Government Radio Service where it is available for State Guard operations.

(3) This frequency is shared with the Highway Maintenance Radio Service.

(4) This frequency will be assigned only for one-way paging communications to mobile receivers. Transmissions for the purpose of activating or controlling remote objects on this frequency are not authorized.

(5) This frequency is reserved for assignment only to national organizations eligible for disaster relief operation under § 90.41.

(6) The frequencies available for use at operational fixed stations in the

band 72-76 MHz are listed in § 90.257(a)(1). These frequencies, are shared with other services and are available only in accordance with the provisions of § 90.257.

(7) This frequency may be authorized only for voice transmission from a portable (hand-held unit) that is not airborne, to an ambulance or other emergency vehicle for automatic retransmission (mobile repeater) on a regular mobile frequency to a base station facility. Operation on this frequency is limited to 2.5 watts output power.

(8) Any application for use of this frequency shall be accompanied by a signed statement that all licensees in other radio services who operate on a frequency 15 kHz removed and are located 16 to 56 km. (10-35 mi.) from the proposed base station have been notified of the applicant's intent to file, together with an acceptable engineering report indicating that harmful interference to the operation of existing stations will not be caused. In no instance will an application be granted in this service where the distance between the proposed station and existing base stations is less than 16 km. (10 mi.).

(9) This frequency is assignable only to those hospitals described in § 90.35(a)(1) and to those ambulance companies which need to communicate with a hospital authorized on this frequency, while providing an ambulance service.

(10) This frequency is authorized for use under § 90.35(a) for the rendition and delivery of medical services, and may be designated by common consent as an inter-system mutual assistance frequency under an area-wide medical communications plan.

(11) Operations on this frequency are limited to 30 watts transmitter output power.

(12) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Industrial and Land-Transportation Radio Service where they are assigned for land mobile operations.

(13) This frequency is authorized for use under § 90.35(a) for telemetry or voice transmission with maximum transmitter output power of 1 watt from a portable telemetering unit to an ambulance for automatic retransmission (mobile repeater) to a hospital or other medical care facility. This frequency is also available in the Local Government Radio Service for highway radio call box operations. (See § 90.17 (b) and (c)(11).)

(14) The continuous carrier mode of operation may be used for telemetry transmission on this frequency.

(15) For applications for new radio systems received after August 15, 1974, the eight frequency pairs listed below will only be assigned in a block for shared operations under § 90.35(a) subject to the following:

(i) For uniformity in usage, these frequency pairs may be referred to by channel name as follows:

Frequencies base and mobile	Mobile only (megahertz)	Channel name
Megahertz:		
463.000	468.000	MED-1
463.025	468.025	MED-2
463.050	468.050	MED-3
463.075	468.075	MED-4
463.100	468.100	MED-5
463.125	468.125	MED-6
463.150	468.150	MED-7
463.175	468.175	MED-8

(ii) Except as provided in subparagraphs (v) and (vi) of this paragraph, mobile or portable stations must employ equipment which is both wired and equipped to transmit/receive, respectively, on each of these eight frequency pairs with transmitters operated on the 468 MHz frequencies.

(iii) Except as provided in subparagraph (vi) of this paragraph, base or control stations must employ equipment which is both wired and equipped to transmit/receive, respectively, on at least four (three, if biomedical telemetry operation is not employed in the system) of these eight pairs.

(iv) Multi-channel equipment requirement for use of these frequency pairs are intended to afford capability for alternating use of the individual frequencies, and ability to conduct simultaneous operations is not required. These requirements may be met in a single equipment unit or in any combination of equipment units suitable to a licensee's operations. The multi-channel requirements may be satisfied by several single-channel base stations in a mobile relay system provided that each control station can access all of the base stations and that any mobile unit located anywhere in the area of coverage can activate each of the base frequencies involved.

(v) Portable (hand-held) units operated with a maximum output power of 2.5 watts are exempted from the multi-channel equipment requirements specified in subparagraph (ii) in this paragraph.

(vi) Stations located in areas above line A, as defined in § 90.7, will be required to meet multi-channel equipment requirements only for those frequencies up to the number specified in subparagraph (ii) and (iii) of this paragraph which have been assigned to the licensee after coordination with Canada in accordance with the applicable U.S.-Canada agreement.

(16) This frequency is primarily authorized for use under § 90.35(a) in the dispatch of medical-care vehicles and personnel for the rendition or delivery of medical services. This frequency may also be assigned for intra-system and inter-system mutual assistance purposes.

(17) This frequency is available in this service only for systems licensed in the service prior to April 16, 1976, until March 1, 1986. Use of this frequency is shared with and is primary to operations in the Police Radio Service.

(18) Until March 1, 1986, use of this frequency is on a secondary basis to Police Radio Service licenses authorized prior to April 16, 1976.

(19) This frequency is primarily authorized for use, under § 90.35(a) for operations in bio-medical telemetry systems. F2, F3, and F9 emissions may be authorized. On a secondary basis, this frequency may be utilized for any other permissible communications consistent with § 90.35.

(20) This frequency is primarily authorized for use under § 90.35(a), for communications between medical facilities vehicles and personnel related to medical supervision and instruction for treatment and transport of patients in the rendition or delivery of medical services. F2 and F3 emissions are authorized. On a secondary basis, this frequency may be utilized for any other permissible communications consistent with § 90.35, including biomedical telemetry transmissions, and F9 emission may be additionally authorized.

(21) Subpart M contains rules for assignment of frequencies in the 806-821 and 851-866 MHz bands.

(22) Assignment of frequencies for operational-fixed stations in the bands 952 MHz and above is governed by part 94 of this Chapter.

(23) This frequency band is available in this service subject to the provisions of § 90.259.

(24) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific or medical (ISM) devices.

(25) A licensee regularly conducting two-way communication operations on this frequency may, on a secondary basis, also transmit one-way alert-paging signals to ambulance and rescue squad personnel.

(c) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service. (See also § 90.253).

(1) Substitution of frequencies available below 25 MHz may be made in accordance with the provisions of § 90.263.

(2) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(3) Frequencies in the band 73.0–74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(4) The frequency bands 31.99 to 32.00 MHz, 33.00 to 33.01 MHz, 33.99 to 34.00 MHz, 37.93 to 38.00 MHz, 39.00 to 39.01 MHz, 39.99 to 40.00 MHz and 42.00 to 42.01 MHz are available for assignment for developmental operation subject to the provisions of subpart P.

(d) *Limitation on number of frequencies assignable.* Normally only one frequency below 450 MHz will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with the operation of mobile repeaters in accordance with § 90.247, notwithstanding this limitation.

(2) An additional frequency may be assigned for paging operations from those frequencies available under § 90.53(b)(4).

(3) The frequency 155.340 MHz may be assigned as an additional frequency when it is designated as a mutual assistance frequency as provided in § 90.53(b)(10).

(4) Additional frequencies may be assigned for fixed station operations.

(5) Frequencies in the 25–50 MHz, 150–170 MHz, and 450–512 MHz bands, and the frequency bands 903–904 MHz, 904–912 MHz, 918–926 MHz, and 926–927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

§ 90.55 Paging operations.

Effective August 15, 1974, paging operations may be authorized in the Special Emergency Radio Service only on frequencies assigned under the provisions of § 90.53(b)(25). Paging operations on other frequencies, authorized prior to August 15, 1974, may be continued for the balance of the license term then effective. In addition, such operations may be renewed until January 1, 1980, subject to the condition that harmful interference is not caused to regularly authorized operations in the Special Emergency Radio Service.

Subpart D—Industrial Radio Services

§ 90.59 Scope.

The Industrial Radio Services include the Power, Petroleum, Forest Products, Motion Picture, Relay Press, Special Industrial, Business, Manufacturers, and Telephone Maintenance Radio Services. Rules as to eligibility for licensing, specific frequencies available, and any special requirements as to each of these radio services are set forth in the following sections.

§ 90.61 General eligibility.

In addition to the eligibility shown in each Industrial Radio Service, eligibility is also provided for any corporation proposing to funish nonprofit radiocommunication service to its parent corporation, to another subsidiary of the same parent, or to its own subsidiary provided the party served is regularly engaged in any of the eligibility activities set forth in the particular service involved. Eligibility is also provided, except in the Business Radio Service, for a nonprofit corporation or association that is organized for the purpose of furnishing a radiocommunication service to persons actually engaged in any of the eligibility activities set forth in the particular service involved subject to the cooperative use provisions of § 90.179.

§ 90.63 Power radio service.

(a) *Eligibility.* Persons primarily engaged in any of the following activities are eligible to hold authorizations in the Power Radio Service to operate radio stations for transmission of communications essential to such activities of the licensee:

(1) The generation, transmission, or distribution of electrical energy for use by the general public or by the members of a cooperative organization.

(2) The distribution of manufactured or natural gas by means of pipe line, for use by the general public or by the members of a cooperative organization, or, in a combination of that activity with the production, transmission or storage of manufactured or natural gas preparatory to such distribution.

(3) The distribution of steam by means of pipeline or, of water by means of pipeline, canal, or open ditch, for use by the general public or by the members of a cooperative organization, or in a combination of that activity with the collection, transmission, storage, or purification of water or the generation of steam preparatory to such distribution.

(4) The providing of a supporting service by a corporation directly related to activities of its parent corporation, of another subsidiary of the same parent, or of its own subsidiary, where the party served is regularly engaged in any of the eligibility activities set forth in this section.

(b) *Special use of service.* (1) Radio facilities licensed to an electric power entity, in addition to being used primarily for the installation and maintenance of the electric power system, may also be used for the installation and maintenance of any other wireline facilities where such facilities employ in whole or in part the same pole line or duct distribution system as that of the electric power entity and where the licensee has the responsibility to maintain such additional wireline facilities through common ownership or contractual arrangement.

(2) Persons licensed under the provisions of subparagraph (a)(2) of this section may utilize their radio facilities in conjunction with the supplying of liquefied petroleum gas to consumers in areas beyond gas distribution pipelines.

(c) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Power Radio Service, together with the class of station(s) to which they are normally assigned and the specific assignment limitations which are explained in paragraph (d) of this section:

Power Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Kilohertz:		
2292	Base or mobile	1
2398	do	1
4637.5	do	1
Megahertz:		
37.46	Base or mobile	
37.48	do	
37.50	do	
37.52	do	
37.54	do	
37.56	do	
37.58	do	
37.60	Base, mobile or operational fixed.	2
37.62	Base or mobile	
37.64	do	
37.66	do	
37.68	do	
37.70	do	
37.72	do	
37.74	do	
37.76	do	
37.78	do	
37.80	do	
37.82	do	
37.84	Operational fixed, base or mobile.	2
37.86	Base or mobile	
47.70	do	
47.72	do	
47.74	do	
47.76	do	
47.78	do	
47.80	do	
47.82	do	
47.84	do	
47.86	do	
47.88	do	
47.90	do	
47.92	do	
47.94	do	
47.96	do	
47.98	do	
48.00	do	
48.02	do	
48.04	do	

Power Radio Service Frequency Table— Continued

Frequency or band	Class of station(s)	Limitations
48.06	do	
48.08	do	
48.10	do	
48.12	do	
48.14	do	
48.16	do	
48.18	do	
48.20	do	
48.22	do	
48.24	do	
48.26	do	
48.28	do	
48.30	do	
48.32	do	
48.34	do	
48.36	do	
48.38	do	
48.40	do	
48.42	do	
48.44	do	
48.46	do	
48.48	do	
48.50	do	
48.52	do	
48.54	do	
72–76	Operational fixed	3
153.410	Base or mobile	
153.425	do	4
153.440	do	5
153.455	do	4
153.470	do	
153.485	do	4
153.500	do	5
153.515	do	4
153.530	do	
153.545	do	4
153.560	do	5
153.575	do	4
153.590	do	
153.605	do	4
153.620	do	5
153.635	do	4
153.650	do	
153.665	do	4
153.680	do	5
153.695	do	
153.710	do	
153.725	do	
154.45625	Mobile	7, 21, 22, 23
154.46375	do	6, 7, 21
154.47125	do	7, 11, 21, 22
154.47875	do	7, 21, 22, 23
158.130	Base or mobile	
158.145	do	8
158.160	do	9
158.175	do	8
158.190	do	
158.205	do	8
158.220	do	9
158.235	do	8
158.250	do	
158.265	do	8
169–172	Operational fixed	10
173.20375	Fixed or mobile	7, 11, 21, 22
173.2100	do	11, 12, 21, 22
173.2375	do	7, 21, 22, 23
173.250	Base or mobile	9
173.2625	Fixed or mobile	7, 21, 22, 23
173.2875	do	7, 21, 22, 23
173.300	Base or mobile	9
173.3125	Fixed or mobile	7, 21, 22, 23
173.3375	do	7, 21, 22, 23
173.350	Base or mobile	9
173.3625	Fixed or mobile	7, 21, 22, 23
173.3900	do	11, 12, 21, 22
173.39625	do	7, 11, 21, 22
406–413	Operational fixed	10
450–470	Fixed	14
451.025	Base or mobile	
451.050	do	
451.075	do	
451.100	do	
451.125	do	
451.150	do	
451.175	do	15
451.200	do	
451.225	do	15

Power Radio Service Frequency Table— Continued

Frequency or band	Class of station(s)	Limitations
451.250	do	
451.275	do	15
451.375	do	15
451.425	do	15
451.475	do	15
451.525	do	15
451.575	do	15
451.625	do	15
451.675	do	15
456.025	Mobile	
456.050	do	
456.075	do	
456.100	do	
456.125	do	
456.150	do	
456.175	do	15
456.200	do	
456.225	do	15
456.250	do	
456.275	do	15
456.375	do	15
456.425	do	15
456.475	do	15
456.525	do	15
456.575	do	15
456.625	do	15
456.675	do	15
462.475	Base or mobile	15
462.525	do	15
467.475	Mobile	15
467.525	do	15
470 to 512	Base or mobile	16
806 to 821	Mobile	17
851 to 866	Base or mobile	17
952 and above	Operational fixed	18
1427 to 1435	Base, mobile or operational fixed.	13
2450 to 2500	Base or mobile	19
8400 to 8500	do	20
10,550 to 10,680	do	

(d) Explanation of assignment limitations appearing in the frequency tabulation of paragraph (c) of this section:

(1) Frequencies below 25 MHz will be assigned to base or mobile stations in this service only upon a satisfactory showing that, from a safety of life standpoint, frequencies above 25 MHz will not meet the operational requirements of the applicant.

(2) This frequency may be assigned only to stations operating in an interconnected or coordinated utility system in accordance with an operational communications plan which sets forth all points of communications. Authorizations at variance with an established operational communications plan will be made only on a secondary basis.

(3) The frequencies available for use at operational fixed stations in the band 72–76 MHz are listed in § 90.257(a)(1). These frequencies are shared with other services and are available only in accordance with the provisions of § 90.257.

(4) This frequency is shared with the Forest Products and Petroleum Radio Services in the States of Arkansas, Louisiana, Oklahoma, and Texas.

(5) This frequency is not available for assignment in the service in the States of Arkansas, Louisiana, Oklahoma, and Texas. In these States, this frequency is available to the Petroleum and Forest Products Radio Services.

(6) This frequency is available primarily for assignment to multiple address fixed stations employing omnidirectional antennas used for Power Utility peak load shaving and shedding and to mobile stations used for the remote control of objects and devices. The maximum power that may be authorized to fixed stations is 300 watts output, and the maximum power that may be authorized for mobile stations is 1 watt output. A1, A2, F1, or F2 emission may be authorized. This frequency may also be assigned to operational fixed stations employing directional antenna systems (front-to-back ratio of 20 dB) when such stations are located at least 120 km. (75 mi.) from the boundaries of any urbanized area of 200,000 or more population, (U.S. Census of Population, 1970, vol. I, fig. 46, p. S36). The maximum power output of the transmitter for such fixed stations may not exceed 50 watts. A1, A2, F1, or F2 emission may be authorized.

(7) For FM transmitters the sum of the highest modulating frequency and the amount of frequency deviation may not exceed 2.8 kHz and the maximum frequency deviation may not exceed 2.5 kHz. For AM transmitters the highest modulating frequency may not exceed 2.0 kHz. The carrier frequency must be maintained within 0.0005 percent, and the authorized bandwidth may not exceed 6 kHz.

(8) This frequency is shared with Forest Products and Petroleum Radio Services in the States of Arkansas, Louisiana, Oklahoma, Oregon, Texas, and Washington.

(9) This frequency is not available for assignment in this service in the States of Arkansas, Louisiana, Oklahoma, Oregon, Texas, and Washington. In these States this frequency is available only in the Petroleum and Forest Products Radio Services.

(10) This frequency will be assigned only for transmitting hydrological or meteorological data in accordance with the provisions of § 90.265.

(11) The maximum output power of the transmitter may not exceed 50 watts for fixed stations and 1 watt for mobiles. A1, A2, A9, F1, F2, or F9 emission may be authorized.

(12) For FM transmitters the sum of the highest modulating frequency and the amount of frequency deviation may not exceed 1.7 kHz and the maximum deviation may not exceed 1.2 kHz. For AM transmitters the highest modulating frequency may not exceed 1.2 kHz. The carrier frequency must be maintained within 0.0005 percent and the authorized bandwidth may not exceed 3 kHz.

(13) This band is available to stations operating in this service subject to the provisions of § 90.259.

(14) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Public Safety and Land Transportation Radio Services where they are assigned for land mobile operations.

(15) This frequency is available on a shared basis in the Power, Petroleum, Forest Products, Manufacturers, and Telephone Maintenance Radio Services. It may be assigned only when all of the frequencies in the 450-470 MHz band allocated to the service in which the applicant is primarily eligible are assigned within 56 km. (35 mi) of the proposed base station. Applications for this frequency must be coordinated with all five services.

(16) Subpart L contains rules for assignment of frequencies in the 470-512 MHz band.

(17) Subpart M contains rules for assignment of frequencies in the 806-821 and 851-866 MHz bands.

(18) Assignment of frequencies for operational-fixed stations in the bands 952 MHz and above is governed by part 94 of this chapter.

(19) This frequency band is available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific, or medical (ISM) devices.

(20) Use of this frequency is limited to developmental operation and is subject to the provisions of subpart P.

(21) This frequency is available on a shared basis with the Local Government, Petroleum, Forest Products, Special Industrial, Business and Manufacturers Radio Services for remote control and telemetry operations.

(22) Operational fixed stations must employ directional antennas having a front-to-back ratio of at least 20 dB. Omnidirectional antennas having unity gain may be employed for stations communicating with at least three receiving locations separated by 160° of azimuth.

(23) The maximum effective radiated power (ERP) may not exceed 20 watts for fixed stations and 2 watts for mobile stations. The height of the antenna system may not exceed 15.24 meters (50 ft.) above the ground. All such operation is on a secondary basis to adjacent channel land mobile operations.

(e) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service. (See also § 90.253.)

(1) Frequencies may be substituted for those available below 25 MHz in accordance with the provisions of § 90.263.

(2) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(3) Frequencies in the band 73.0-74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(4) Persons eligible under the provisions of subparagraph (a)(2) of this section who are engaged in the distribution of natural gas directly to consumers and who have a substantial requirement for mobile service communication with a gas supplier may be authorized to operate on the Petroleum Radio Service frequency or frequencies assigned to the supplier. However, such operation shall be limited to communications in a local area common to both parties, and shall relate only to gas supply and distribution activities. The application of any person seeking a frequency assignment under the provisions of this paragraph shall be accompanied by a written statement from the natural gas supplier which concurs in the need for such intercommunication and consents to the use by the natural gas distributor of the frequency or frequencies involved.

(f) *Limitation on number of frequencies assignable.* Normally only one frequency, or pair of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with operation of mobile repeaters in accordance with § 90.247 notwithstanding this limitation.

(2) Frequencies in the ranges 30.56-30.57 MHz, 35.00-35.01 MHz, 35.99-36.00 MHz, and 37.00-37.01 MHz are available for developmental operation by applicants in this service subject to the provisions of subpart P, notwithstanding this limitation.

(3) Frequencies in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands, and the frequency bands 903-904 MHz, 904-912 MHz, 918-926 MHz, and 926-927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

§ 90.65 Petroleum radio service.

(a) *Eligibility.* Persons primarily engaged in prospecting for, producing, collecting, refining, or transporting by means of pipeline, petroleum or petroleum products (including natural gas) are eligible to hold authorizations in the Petroleum Radio Service to operate radio stations for transmissions of communications essential to such activities of the licensee: However, persons engaged solely in the containment or cleanup of oil spills will only be assigned those frequencies designated by limitations (30) and (31) in this section.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Petroleum Radio Service, together with the class of station(s) to which they are normally assigned and the specific assignment limitations which are explained in paragraph (c) of this section:

Petroleum Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Kilohertz:		
1614	Base or mobile	1,2,3,4
1628	do	1, 2, 3, 4
1652	do	1, 2, 3, 4
1676	do	1, 2, 3, 4
1700	do	1, 2, 3, 4
2292	do	1, 2, 3, 5
2398	do	1, 2, 4, 5
4637.5	do	1, 2, 4, 5
Megahertz:		
25.02	do	3, 4
25.04	do	6
25.06	do	3, 4
25.08	do	6, 7
25.10	do	3, 4
25.12	do	
25.14	do	3, 4, 7
25.16	do	
25.18	do	3, 4
25.20	do	
25.22	do	4, 5
25.24	do	
25.26	do	4, 5
25.28	do	
25.30	do	4, 5
25.32	do	
30.66	do	4, 5, 8
30.70	do	4, 5
30.74	do	4, 5, 8
30.78	do	4, 5
30.82	do	4, 5, 8
33.18	do	
33.20	do	
33.22	do	
33.24	do	
33.26	do	
33.28	do	
33.30	do	
33.32	do	
33.34	do	
33.36	do	
33.38	do	
36.25	do	9
41.71	do	9
48.56	do	10
48.58	do	10
48.60	do	10
48.62	do	10
48.64	do	10
48.66	do	10
48.68	do	10
48.70	do	10
48.72	do	10
48.74	do	10
48.76	do	10
48.78	do	10
48.80	do	10
48.82	do	10
48.84	do	10
48.86	do	10
48.88	do	10
48.90	do	10

Petroleum Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
48.92	do	10
48.94	do	10
48.96	do	10
48.98	do	10
49.00	do	10
49.02	do	10
49.04	do	10
49.06	do	10
49.08	do	10
49.10	do	10
49.12	do	10
49.14	do	10
49.16	do	10
49.18	do	10
49.20	do	10
49.22	do	10
49.24	do	10
49.26	do	10
49.28	do	10
49.30	do	10
49.32	do	10
49.34	do	10
49.36	do	10
49.38	do	10
49.40	do	10
49.42	do	10
49.44	do	10
49.46	do	10
49.48	do	10
49.50	do	10
72 to 76	Operational fixed	11
150.980	Base or mobile	6
153.035	do	12
153.050	do	12
153.065	do	4, 5, 13
153.080	do	4, 5, 13
153.095	do	4, 5, 13
153.110	do	4, 5, 13
153.125	do	4, 5, 13
153.140	do	4, 5, 13
153.155	do	4, 5, 13
153.170	do	4, 5, 13
153.185	do	4, 5, 13
153.200	do	4, 5, 13
153.215	do	4, 5, 13
153.230	do	4, 5, 13
153.245	do	4, 5, 13
153.260	do	4, 5, 13
153.275	do	4, 5, 13
153.290	do	4, 5, 13
153.305	do	4, 5, 13
153.320	do	4, 5, 13
153.335	do	4, 5, 13
153.350	do	4, 5, 13
153.365	do	13
153.380	do	13
153.395	do	13
153.425	do	14
153.440	do	10, 15
153.455	do	14
153.485	do	14
153.500	do	10, 15
153.515	do	14
153.545	do	14
153.560	do	10, 15
153.575	do	14
153.605	do	14
153.620	do	10, 15
153.635	do	14
153.665	do	14
153.680	do	10, 15
154.45625	Fixed or mobile	16, 18, 24, 34
154.46375	do	16, 18, 24, 35, 36
154.47125	do	16, 18, 24, 35
154.47875	do	16, 18, 24, 34
154.585	Mobile	6, 19
158.145	Base or mobile	6, 19
158.160	do	10, 21
158.175	do	20
158.205	do	20
158.220	do	10, 21
158.235	do	20
158.265	do	20
158.280	do	13
158.295	do	13
158.310	do	13

Petroleum Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
158.325	do	13
158.355	do	10
158.370	do	4, 5, 10
158.415	do	13
158.430	do	4, 5, 13
158.445	Mobile	6, 22
159.480	Base of mobile	6
169.172	Operational fixed..	23
173.20375	Fixed or mobile	16, 18, 24, 25
173.2100	do	16, 24, 25, 35
173.2375	do	16, 18, 24, 34
173.250	Base or mobile	10, 21
173.2625	Fixed or mobile	16, 18, 24, 34
173.2875	do	16, 18, 24, 34
173.300	Base or mobile	10, 21
173.3125	Fixed or mobile	16, 18, 24, 34
173.3375	do	16, 18, 24, 34
173.350	Base or mobile	10, 21
173.3625	Fixed or mobile	16, 18, 24, 34
173.3900	do	16, 24, 25, 35
173.39625	do	16, 18, 24, 35
216–220	Base or mobile	26
406.413	Operational fixed..	23
450–470	Fixed	27
451.175	Base or mobile	28
451.225	do	28
451.275	do	28
451.375	do	28
451.425	do	28
451.475	do	28
451.525	do	28
451.550	Base or mobile	4, 5, 10
451.575	do	28
451.600	do	4, 5, 10
451.625	do	28
451.650	do	4, 5, 10
451.675	do	28
451.700	do	4, 5, 10
451.750	do	4, 5, 10
454.000	do	6
456.175	Mobile	28
456.225	do	28
456.275	do	28
456.375	do	28
456.425	do	28
456.475	do	28
456.525	do	28
456.550	do	10
456.575	do	28
456.600	do	10
456.625	do	28
456.650	do	10
456.675	do	28
456.700	do	10
456.750	do	10
459.000	Base or mobile	6
462.475	do	28
462.525	do	28
467.475	Mobile	28
467.525	do	28
470 to 512	Base or mobile	29
806–821	Mobile only	30
851–866	Base or mobile	30
952 and above	Operational fixed..	31
1427 to 1435	Operational fixed, base or mobile.	26
2450 to 2500	Base or mobile	32
8400 to 8500	do	33
10,550 to 10,680	do	

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b) of this section:

(1) Frequencies below 25 MHz will be assigned to base or mobile stations in this service only upon a satisfactory showing that, from a safety of life standpoint, frequencies above 25 MHz will not need the operational requirements of the applicant.

(2) Use of this frequency is limited to an amplitude modulation mode of operation.

(3) This frequency is available for assignment only to stations utilized for geophysical purposes.

(4) Geophysical operations may use tone or impulse signaling for purposes other than indicating failure of equipment or abnormal conditions on this frequency. All such tone or impulse signaling shall be on a secondary basis and subject to the following limitations:

(i) Maximum duration of a single nonvoice transmission, may not exceed 3 minutes.

(ii) The bandwidth utilized for secondary tone or impulse signaling shall not exceed that authorized to the licensee for voice emission on the frequency concerned.

(iii) Frequency loading resulting from the use of secondary tone or impulse signaling will not be considered in whole or in part, as a justification for authorizing additional frequencies in the licensee's mobile service system.

(iv) The maximum transmitter output power for tone or impulse transmissions shall not exceed 50 watts.

(5) This frequency is available for assignment to geophysical stations on a secondary basis to other petroleum licensees. Geophysical stations must cease operations on this frequency immediately upon receiving notice that interference is being caused to mobile service stations.

(6) This frequency is primarily available for oil spill containment and cleanup operations and for training and drills essential in the preparations for the containment and cleanup of oil spills. It is secondarily available for general base-mobile operations in the Petroleum Radio Service on a noninterference basis. Secondary users of this frequency are required to forego its use should oil spill containment and cleanup activities be present in their area of operation or upon notice by the Commission or a primary user that harmful interference is being caused to oil spill containment or cleanup activities in other areas.

(7) Operation on this frequency is secondary to stations in the maritime mobile service operating in accordance with the International table of frequency allocations.

(8) This frequency is shared with the Motor Carrier Radio Service.

(9) This Government frequency is available for shared Government/non-Government use by stations engaged in oil spill containment and cleanup operations and for training and drills essential in the preparation for containment and cleanup of oil spills. Such use will be confined to inland and coastal waterways.

(10) This frequency is shared with the Forest Products Radio Service.

(11) The frequencies available for use at operational fixed stations in the band 72-76 MHz are listed in § 90.257(a)(1). These frequencies are shared with other services, and are available only in accordance with the provisions of § 90.257.

(12) This frequency is shared with the Special Industrial Radio Service.

(13) This frequency is shared with the Forest Products and Manufacturers Radio Services.

(14) This frequency is shared with Power and Forest Products Radio Services and is available in this service only in the States of Arkansas, Louisiana, Oklahoma, and Texas. Elsewhere this frequency is available in the Power Radio Service.

(15) This frequency is available for assignment in this service only in the States of Arkansas, Louisiana, Oklahoma, and Texas. Elsewhere this frequency is available in the Power Radio Service.

(16) Operational fixed stations must employ directional antennas having a front-to-back ratio of at least 20 dB. Omnidirectional antennas having unity gain may be employed for stations communicating with at least three receiving locations separated by 160° of azimuth.

(17) This frequency band is shared with the Special Industrial Radio Service.

(18) For FM transmitters the sum of the highest modulating frequency and the amount of frequency deviation may not exceed 2.8 kHz and the maximum deviation may not exceed 2.5 kHz. For AM transmitters the highest modulating frequency may not exceed 2 kHz. The carrier frequency must be maintained within 0.0005 percent of the center of the frequency band, and the authorized bandwidth may not exceed 6 kHz.

(19) This frequency is limited to a maximum power of 20 watts.

(20) This frequency is shared with Power and Forest Products Radio Services and is available in this service only in the States of Arkansas, Louisiana, Oklahoma, Oregon, Texas, and Washington. Elsewhere, this frequency is available only in the Power Radio Service.

(21) This frequency is available for assignment in this service only in the States of Arkansas, Louisiana, Oklahoma, Oregon, Texas, and Washington. Elsewhere, it is available in the Power Radio Service.

(22) This frequency is limited to a maximum output power of 75 watts.

(23) This frequency will be assigned only for transmitting hydrological or meteorological data in accordance with the provisions of § 90.265.

(24) This frequency band is shared with Power, Forest Products, Special Industrial, Petroleum, Manufacturers, Business, and with the Local Government Radio Service.

(25) For FM transmitters the sum of the highest modulating frequency and the amount of frequency deviation may not exceed 1.7 kHz and the maximum deviation may not exceed 1.2 kHz. For AM transmitters the highest modulating frequency may not exceed 1.2 kHz. The carrier frequency must be maintained within 0.0005 percent, and the authorized bandwidth may not exceed 3 kHz.

(26) This band is available to stations operating in this service subject to the provisions of § 90.259.

(27) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Public Safety and Land Transportation Radio Services where they are assigned for land mobile operations.

(28) This frequency is available on a shared basis in the Power, Petroleum, Forest Products, Manufacturers, and Telephone Maintenance Radio Services. It may be assigned only when all of the frequencies in the 450-470 MHz band allocated to the service in which the applicant is primarily eligible are assigned within 56 km. (35 mi.) of the proposed base station.

(29) Subpart L contains rules for assignment of frequencies in the 470-512 MHz band.

(30) Subpart M contains rules for assignment of frequencies in the 806-821 and 851-866 MHz bands.

(31) Assignment of frequencies to operational-fixed stations in the bands 952 MHz and above is governed by part 94 of this chapter.

(32) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific, or medical (ISM) devices.

(33) Use of this frequency band is limited to developmental operation and is subject to the provisions of subpart P.

(34) The maximum effective radiated power (ERP) may not exceed 20 watts for fixed stations and 2 watts for mobile stations. The height of the antenna system may not exceed 15.24 meters (50 feet) above ground. All such operation is on a secondary basis to adjacent channel land mobile operations.

(35) The maximum output power of the transmitter may not exceed 50 watts for fixed stations and 1 watt for mobile stations. A1, A2, A9, F1, F2, or F9 emission may be authorized.

(36) Use of this frequency is limited to stations located at least 120.7 km. (75 miles) from the center of an urbanized areas of 200,000 or more population (U.S. Census of Population, 1970). Operation is on a secondary basis to that in the Power Radio Service.

(d) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service. (See also § 90.253.)

(1) Frequencies may be substituted for those available below 25 MHz in accordance with the provisions of § 90.255.

(2) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available for assignment in accordance with § 90.255.

(3) Frequencies in the band 73.0-74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(4) Persons eligible in this service who are engaged in the transporation of natural gas by pipeline and who have a substantial requirement for mobile service communication with a public utility company purchasing such gas for distribution to the consumer may be authorized to operate on the Power Radio Service frequency or frequencies assigned to such distributor(s). However, such operation shall be limited to communications in the local area common to both parties and shall relate only to gas supply and distribution activities. The application of any person seeking a frequency assignment under the provisions of this paragraph shall be accompanied by a written statement from the natural gas distributor which concurs in the need for such intercommunication, and consents to the use by the natural gas supplier or the frequencies involved.

(e) *Limitation on number of frequencies assignable.* Normally only one frequency, or pair of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with operation of mobile repeaters in accordance with § 90.247 not withstanding this limitation.

(2) Frequencies in the ranges 30.56-30.57 MHz, 30.00-35.01 MHz, 35.99-36.00 MHz, and 37.00-37.01 MHz are available for developmental operation by applicants in this service subject to the provisions of subpart P notwithstanding this limitation.

(3) Authorizations for multiple frequencies for geophysical operations will be granted on the frequencies governed by the limitations in subparagraphs, (c)(3) and (c)(4) of this section notwithstanding this limitation. However, each geophysical exploration party may only use a maximum of four frequencies at any one time.

(4) Frequencies in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands, and the frequency bands 903-904 MHz, 904-912 MHz, 918-926 MHz, and 926-927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

§ 90.67 Forest Products Radio Service.

(a) *Eligibility.* Persons primarily engaged in any of the following activities are eligible to hold authorizations in the Forest Products Radio Service to operate radio stations for transmission of communications essential to such activities of the licensee:

(1) Tree logging, tree farming, or related woods operations, including related hauling activities, if the hauling activities are performed under contract to, and exclusively for, persons engaged in woods operations;

(2) Manufacturing lumber, plywood, hardboard, or pulp and paper products from wood fiber by persons eligible under the provisions of subparagraph (1) of this paragraph.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Forest Products Radio Service, together with the class of station(s) to which they are normally assigned and the specific assignment limitations which are explained in paragraph (c) of this section:

Forest Products Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Kilohertz:		
1676	Base or mobile	1
1700	do	1
2398	do	1
Megahertz:		
29.71	do	
29.73	do	
29.75	do	
29.77	do	
29.79	do	
30.68	do	
30.72	do	
37.44	do	
37.88	do	
48.56	do	2
48.58	do	2
48.60	do	2
48.62	do	2
48.64	do	2
48.66	do	2
48.68	do	2
48.70	do	2
48.72	do	2
48.74	do	2
48.76	do	2
48.78	do	2

Forest Products Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
48.80	do	2
48.82	do	2
48.84	do	2
48.86	do	2
48.88	do	2
48.90	do	2
48.92	do	2
48.94	do	2
48.96	do	2
48.98	do	2
49.00	do	2
49.02	do	2
49.04	do	2
49.06	do	2
49.08	do	2
49.10	do	2
49.12	do	2
49.14	do	2
49.16	do	2
49.18	do	2
49.20	do	2
49.22	do	2
49.24	do	2
49.26	do	2
49.28	do	2
49.30	do	2
49.32	do	2
49.34	do	2
49.36	do	2
49.38	do	2
49.40	do	2
49.42	do	2
49.44	do	2
49.46	do	2
49.48	do	2
49.50	do	2
49.54	do	3
49.58	do	3
72-76	Operational fixed	4
152.465	Base or mobile	24
152.480	Base or mobile	5
153.050	do	6
153.065	do	6
153.080	do	6
153.095	do	6
153.110	do	6
153.125	do	6
153.140	do	6
153.155	do	6
153.170	do	6
153.185	do	6
153.200	do	6
153.215	do	6
153.230	do	6
153.245	do	6
153.260	do	6
153.275	do	6
153.290	do	6
153.305	do	6
153.320	do	6
153.335	do	6
153.350	do	6
153.365	do	6
153.380	do	6
153.395	do	6
153.425	do	7
153.440	do	2, 8
153.455	do	7
153.485	do	7
153.500	do	2, 8
153.515	do	7
153.545	do	7
153.560	do	2, 8
153.575	do	7
153.605	do	7
153.620	do	2, 8
153.635	do	7
153.665	do	7
153.680	do	2, 8
154.45625	Fixed or mobile	13, 14, 25, 27
154.46375	do	13, 14, 24, 25, 27
154.47125	do	13, 14, 24, 25
154.47875	do	13, 14, 25, 27
154.570	Mobile	9
154.600	do	9
154.625	Base or mobile	5

Forest Products Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
157.725	Base or mobile	24
157.740	do	5
158.145	do	10
158.160	do	2, 11
158.175	do	10
158.205	do	10
158.220	do	2, 11
158.235	do	10
158.265	do	10
158.280	do	6
158.295	do	6
158.310	do	6
158.325	do	6
158.355	do	2
158.370	do	2
158.415	do	6
158.430	do	6
158.460	do	5
169.172	Operational fixed	12
173.20375	Fixed or mobile	13, 14, 24, 25
173.2100	do	13, 15, 24, 25
173.2375	do	13, 14, 25, 27
173.250	Base or mobile	2, 11
173.2625	Fixed or mobile	13, 14, 25, 27
173.2875	do	13, 14, 25, 27
173.300	Base or mobile	2, 11
173.3125	Fixed or mobile	13, 14, 25, 27
173.3375	do	13, 14, 25, 27
173.350	Base or mobile	2, 11
173.3625	Fixed or mobile	13, 14, 25, 27
173.3900	do	13, 15, 24, 25
173.39625	do	13, 14, 24, 25
216-220	Base or mobile	16
406-413	Operational fixed	12
450-470	Fixed	17
451.175	Base or mobile	18
451.225	do	18
451.275	do	18
451.375	do	18
451.425	do	18
451.475	do	18
451.525	do	18
451.550	do	2
451.575	do	18
451.600	do	2
451.625	do	18
451.650	do	2
451.675	do	18
451.700	do	2
451.750	do	2
456.175	Mobile	18
456.225	do	18
456.275	do	18
456.375	do	18
456.425	do	18
456.475	do	18
456.525	do	18
456.550	do	2
456.575	do	18
456.600	do	2
456.625	do	18
456.650	do	2
456.675	do	18
456.700	do	2
456.750	do	2
462.475	Base or mobile	18
462.525	do	18
467.475	Mobile	18
467.525	do	18
470-512	Base or mobile	19
806-821	Mobile	20
851-866	Base or mobile	20
952 and above	Operational fixed	21
1427-1435	Operational fixed, base or mobile.	16
2450-2500	Base or mobile	22
8400-8500	do	23
10,550-10,680	do	

(c) Explanation of assignment limitations appearing in the frequency tabulation of paragraph (b) of this section:

(1) Frequencies below 25 MHz will be assigned to base or mobile stations in this service only upon a satisfactory showing that, from a safety of life standpoint, frequencies above 25 MHz will not meet the operational requirements of the applicant.

(2) This frequency is shared with the Petroleum Radio Service.

(3) This frequency is shared with the Special Industrial Radio Service.

(4) The frequencies available for use at operational fixed stations in the band 72–76 MHz are listed in § 90.257(a)(1). These frequencies are shared with other services and are available only in accordance with the provisions of § 90.257.

(5) This frequency is available in this service and in the Special Industrial Radio Service on a secondary basis to one-way paging communications authorized in the Business Radio Service.

(6) This frequency is shared with the Petroleum and Manufacturers Radio Services.

(7) This frequency is shared with the Power and Petroleum Radio Service and is available in this service only in the States of Arkansas, Louisiana, Oklahoma, and Texas. Elsewhere it is available in the Power Radio Service.

(8) This frequency is available for assignment in this service, only in the States of Arkansas, Louisiana, Oklahoma, and Texas. Elsewhere, this frequency is available in the Power Radio Service.

(9) Authorizations to operate on this frequency will be issued for A2 or F2 emission for tone signaling or for a combination of such emission with A3 or F3 emission with a maximum bandwidth of 20 kHz. The output power shall not exceed 2 watts. The maximum distance between any transmitter and the center of the radiating portion of its antenna shall not exceed 8 m. (25 ft.) Operation on this frequency is secondary to stations in the Business Radio Service.

(10) This frequency is shared with Power and Petroleum Radio Services and is available in this service only in the States of Arkansas, Louisiana, Oklahoma, Oregon, Texas, and Washington.

(11) This frequency is available for assignment in this service, only in the States of Arkansas, Louisiana, Oklahoma, Oregon, Texas, and Washington. Elsewhere it is available in the Power Radio Service.

(12) This frequency will be assigned only for transmitting hydrological or meteorological data in accordance with the provisions of § 90.265.

(13) This frequency is available on a shared basis with the Local Government, Power, Petroleum, Special Industrial, Business, and Manufacturers Radio Services for remote control and telemetry operations.

(14) For FM transmitters the sum of the highest modulating frequency and the amount of frequency deviation may not exceed 2.8 kHz and the maximum deviation may not exceed 2.5 kHz. For AM transmitters the highest modulating frequency may not exceed 2 kHz. The carrier frequency must be maintained within 0.0005 percent and the authorized bandwidth may not exceed 6 kHz.

(15) For FM transmitters the sum of the highest modulating frequency and the amount of frequency deviation may not exceed 1.7 kHz and the maximum deviation may not exceed 1.2 kHz. For AM transmitters the highest modulating frequency may not exceed 1.2 kHz. The carrier frequency must be maintained within 0.0005 percent and the authorized bandwidth may not exceed 3 kHz.

(16) This band is available to stations in this service subject to the provisions of § 90.259.

(17) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.281. Operation on these frequencies is secondary to stations in the Public Safety and Land Transportation Radio Services where they are assigned for land mobile operations.

(18) This frequency is available on a shared basis in the Power, Petroleum, Forest Products, Manufacturers, and Telephone Maintenance Radio Services. It may be assigned only when all of the frequencies in the 450–470 MHz band allocated to the service in which the applicant is primarily eligible are assigned within 56 km. (35 mi.) of the proposed base station. Applications for this frequency must be coordinated with all five services.

(19) Subpart L contains rules for assignment of frequencies in the 470–512 MHz band.

(20) Subpart M contains rules for assignment of frequencies in the 806–821 MHz and 851–866 MHz bands.

(21) Assignment of frequencies for operational-fixed stations in the bands 952 MHz and above is governed by Part 94 of this Chapter.

(22) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific, or medical (ISM) devices.

(23) Use of this frequency band is limited to developmental operation and is subject to the provisions of Subpart P.

(24) The maximum cutput power of the transmitter may not exceed 50 watts for fixed stations and 3 watts for mobile stations. A1, A2, A9, F1, F2, or F9 emission may be authorized.

(25) Operational fixed stations must employ directional antennas having a front-to-back ratio of at least 20 db. Omnidirectional antennas having unity gain may be employed for stations communicating with at least three receiving locations separated by 160° of azimuth.

(26) Use of this frequency is limited to stations located at least 120.7 km (75 miles) from the center of any urbanized area of 200,000 or more population (U.S. Census of Population, 1970). Operation is on a secondary basis to that in the Power Radio Service.

(27) The maximum effective radiated power (ERP) may not exceed 20 watts for fixed stations and 2 watts for mobile stations. The height of the antenna system may not exceed 15.24 meters (50 feet) above ground. All such operation is on a secondary basis to adjacent land mobile operations.

(d) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service (See also § 90.253.)

(1) Frequencies may be substituted for those available below 25 MHz in accordance with the provisions of § 90.253.

(2) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(3) Frequencies in the band 73.0–74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(e) *Limitation on number of frequencies assignable.* Normally only one frequency or pair of frequencies in the pair frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with Operation of mobile repeaters in accordance with § 90.247 notwithstanding this limitation.

(2) Frequencies in the ranges 30.56–30.57 MHz, 35.00–35.01 MHz, 35.99–36.00 MHz, and 37.00–37.01 MHz are available for developmental operation by applicants in this service subject to the provisions of Subpart P notwithstanding this limitation.

(3) Frequencies in the 25–50 MHz, 150–170 MHz, and 450–512 MHz bands, and the frequency bands 903–904 MHz, 904–912 MHz, 918–926 MHz, and 926–927 MHz may be assigned for the operations of Automatic Vehicle Monitoring (AVM) systems in accordance with

§ 90.239, notwithstanding this limitation.

§ 90.69 Motion Picture Radio Service

(a) *Eligibility.* Persons primarily engaged in the production or filming of motion pictures are eligible to hold authorizations in the Motion Picture Radio Service to operate radio stations for transmission of communications essential to such activities of the licensee.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Motion Picture Radio Service, together with the class of station(s) to which they are normally assigned and the specific assignment limitations which are explained in paragraph (c) of this section:

Motion Picture Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Kilohertz:		
1628	Base or mobile	1
1652	do	1
2292	do	1
2398	do	1
4637.5	do	1
Megahertz:		
72 to 76	Operational fixed	2
152.87	Base or mobile	3
152.90	do	3
152.93	do	3
152.96	do	3
152.99	do	3
153.02	do	3
173.225	do	4
173.275	do	4
173.325	do	4
173.375	do	4
806 to 821	Mobile	5
851 to 866	Base or mobile	5
952 and above	Operational fixed	6
1427 to 1435	Base, mobile or operational fixed.	7
2450 to 2500	Base or mobile	8
8400 to 8500	do	9
10,550 to 10,680	do	

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b) of this section:

(1) Frequencies below 25 MHz will be assigned to base or mobile stations in this service only upon a satisfactory showing that, from a safety of life standpoint, frequencies above 25 MHz will not meet the operational requirements of the applicant.

(2) The frequencies available for use at operational fixed stations in the band 72–76 MHz are listed in § 90.257(a)(1). These frequencies are shared with other services and are available only in accordance with the provisions of § 90.257.

(3) This frequency is shared with the Special Industrial Radio Service.

(4) This frequency is shared with the Relay Press Radio Service.

(5) Subpart M contains rules for assignment of frequencies in the 806–821 and 851–866 MHz bands.

(6) Assignment of frequencies for operational-fixed stations in the bands 952 MHz and above is governed by Part 94 of this chapter.

(7) This band is available in this service subject to the provisions of § 90.259.

(8) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific or medical (ISM) devices.

(9) Use of this frequency band is limited to developmental operation and is subject to the provisions of Subpart P.

(d) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service.

(1) Frequencies may be substituted for those available below 25 MHz in accordance with the provisions of § 90.263.

(2) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(3) Frequencies in the band 73–74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted.

(e) *Limitation on number of frequencies assignable.* Normally only one frequency, or pair of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with operation of mobile repeaters in accordance with § 90.247, notwithstanding this limitation.

(2) Frequencies in the ranges 30.56–30.57 MHz, 35.00–35.01 MHz, 35.99–36.00 MHz, and 37.00–37–01 MHz are available for assignment for developmental operation by applicants in this service subject to the provisions of Subpart P notwithstanding this limitation.

(3) Frequencies in the 25–50 MHz, 150–170 MHz, and 450–512 MHz bands, and the frequency bands 903–904 MHz, 904–912 MHz, 918–926 MHz, and 926–927 MHz, may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

§ 90.71 Relay Press Radio Service.

(a) *Eligibility.* Persons primarily engaged in the publication of a newspaper or in the operation of an established press association are eligible to hold authorizations in the Relay Press Radio Service to operate radio stations for transmission of communications essential to such activities of the licensee.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Relay Press Radio Service, together with the class of station(s) to which they are normally assigned and the specific assignment limitations which are explained in paragraph (c) of this section:

Relay Press Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Megahertz:		
72.0 to 76.0	Operational fixed	1
173.225	Base or mobile	2
173.275	do	2
173.325	do	2
173.375	do	2
452.975	do	
453.000	do	
457.975	Mobile	
458.000	do	
806 to 821	do	3
851 to 866	Base or mobile	3
952 and above	Operational fixed	4
1427 to 1435	Operational fixed, base or mobile.	5
2450 to 2500	Base or mobile	6
8400 to 8500	do	7
10,550 to 10,680	do	

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b) of this section:

(1) The frequencies available in the band 72–76 MHz are listed in § 90.257(a)(1). These frequencies are shared with other services and are available only in accordance with the provisions of § 90.257.

(2) This frequency is shared with the Motion Picture Radio Service.

(3) Subpart M contains rules for assignment of frequencies in the 806–821 and 851–866 MHz bands.

(4) Assignment of frequencies for operational fixed stations in the bands 952 MHz and above is governed by Part 94 of this Chapter.

(5) This band is available in this service subject to the provisions of § 90.259.

(6) Available only on a shared basis with stations in other services and subject to no protection from interference due to the operation of industrial, scientific, or medical (ISM) devices.

(7) Use of this frequency band is limited to developmental operation and is subject to the provisions of subpart P.

(d) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section the following frequencies are available in this service. (See § 90.253.)

(1) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(2) Frequencies in the band 73–74.6 MHz may be assigned to stations au-

thorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(e) *Limitation on number of frequencies assignable.* Normal only one frequency, or pair of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single application in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with operation of mobile repeaters in accordance with § 90.247 notwithstanding this limitation.

(2) Frequencies in the ranges 30.56-30.57 MHz, 35.00-35.01 MHz, 35.99-36.00 MHz, and 37.00-37.01 MHz are available for assignment to applicants in this service subject to the provisions of subpart P notwithstanding this limitation.

(3) Frequencies in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands, and the frequency bands 903-904 MHz, 904-912 MHz, 918-926 MHz, and 926-927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

§ 90.73 Special industrial radio service.

(a) *Eligibility.* Persons regularly engaged in any of the following activities are eligible to hold authorizations in the Special Industrial Radio Service to operate radio stations for the transmission of only those communications essential to such activities of the licensee. (Persons engaging in some activities which are eligible under this paragraph and in some which are not, and desiring to use radio in connections with both types of activities should apply for authorization in the Business Radio Service.)

(1) The operation of farms, ranches, or similar land areas, for the quantity production of crops or plants; vines or trees (excluding forestry operations); or for the keeping, grazing or feeding of livestock for animal products, animal increase, or value enhancement. Persons establishing eligibility under this subparagraph may use their radio facilities in connection with the gathering or processing of products grown or raised for them by others.

(2) Plowing, soil conditioning, seeding, fertilizing, or harvesting for agricultural activities.

(3) Spraying or dusting of insecticides, herbicides, or fungicides, in areas other than enclosed structures.

(4) Livestock breeding service.

(5) The operation of a commercial business regularly engaged in the construction of roads, bridges, sewer systems, pipelines, airfields, or water, oil, gas, or power production, collection, or distribution systems. Other engineering projects, normally classified as heavy construction activities, will be considered on the merits of the showing made, however, the construction of buildings is not included in this category.

(6) The operation of mines for the recovery of solid fuels, minerals, metal, rock, sand and gravel from the earth or the sea, including the exploration for and development of mining properties.

(7) Maintaining, patrolling or repairing gas or liquid transmission pipelines, tank cars, water or waste disposal wells, industrial storage tanks, or distribution systems of public utilities. Persons establishing eligibility under this subparagraph may use their radio facilities in connection with the containment and cleanup of industrial liquid spillage.

(8) Acidizing, cementing, logging, perforating, or shooting activities, and services of a similar nature incident to the drilling of new oil or gas wells, or the maintenance of production from established wells.

(9) Supplying chemicals, mud, tools, pipe, and other materials or equipment unique to the petroleum and gas production industry, as the primary activity of the applicant if delivery, installation or application of these materials requires the use of specifically fitted conveyances.

(10) The delivery of ice or fuel to the consumer for heating, lighting, refrigeration or power generation purposes, by means other than pipelines or railroads when such products are not to be resold following their delivery. Persons establishing eligibility under this subparagraph may use their radio facilities in connection with the servicing of the equipment that uses or consumes the products delivered.

(11)The delivery and pouring of ready mixed concrete or hot asphalt mix.

(b) *Special limitation on use of service.* Communications relating to any of the following shall not be transmitted by any station licensed in the Special Industrial Radio Service.

(1) Sales reports or the dispatching of salesmen;

(2) Payrolls, accounts, or inventory controls; and

(3) Any message relating to the retail delivery of any item or product, except where such retail delivery is specifically included in the eligibility provisions of this section.

(c) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Special Industrial Radio Service together with the class of station(s) to which they are normally assigned, and the specific assignment limitations which are explained in paragraph (d) of this section.

Special Industrial Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Kilohertz:		
2292	Base or mobile	1
2398	do	1
4637.5	do	1
Megahertz:		
27.69	do	
27.31	do	
27.33	do	
27.35	do	
27.37	do	
30.58	do	2
30.60	do	2
30.62	do	2
30.64	do	
31.28	do	
31.32	do	
31.30	do	
31.36	do	
31.40	do	
31.44	do	
31.48	do	
31.52	do	
31.56	do	
31.60	do	
31.64	do	
31.68	do	
31.72	do	
31.76	do	
31.80	do	
31.84	do	
31.88	do	
31.92	do	
31.96	do	
33.12	Mobile	3
35.28	Base or mobile	
35.32	do	
35.36	do	
35.40	do	
35.44	do	
35.48	do	
35.52	do	
35.74	do	2
35.76	do	2
35.78	do	2
35.80	do	2
35.82	do	2
35.84	do	2
35.86	do	2
43.02	do	
43.04	do	4
43.06	do	
43.08	do	
43.10	do	
43.12	do	
43.14	do	
43.18	do	2
43.28	do	
43.32	do	
43.36	do	
43.40	do	
43.44	do	
43.48	do	
43.52	do	
47.44	do	2
47.48	do	2
47.52	do	2
47.56	do	2
47.60	do	2
47.64	do	2
47.68	do	2
49.52	do	
49.54	do	5
49.56	do	2
49.58	do	5
72.76	Operational fixed	6
72.44	Mobile	7
72.48	do	7
72.52	do	7
72.56	do	7

Special Industrial Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
72.60	do	7
75.44	do	7
75.48	do	7
75.52	do	7
75.56	do	7
75.60	do	7
151.490	Base or mobile	2, 8
151.505	do	4
151.520	do	2
151.535	do	2
151.550	do	2
151.565	do	2
151.580	do	2
151.595	do	2
152.48	do	2, 9
152.870	do	10
152.885	do	2
152.900	do	2, 10
152.915	do	2
152.930	do	2, 10
152.945	do	2
152.960	do	2, 10
152.975	do	2
152.990	do	2, 9
153.005	do	2
153.020	do	2, 9
153.035	do	2, 11
154.45625	Fixed or mobile	12, 13, 15, 25
154.46375	do	12, 13, 15, 26, 27
154.47125	do	12, 13, 15, 27
154.47875	do	12, 13, 15, 25
154.49	Base or mobile	2
154.625	do	2, 9
157.74	do	2, 9
158.385	do	2
158.400	do	4
158.46	do	2, 9
169 to 172	Operational fixed	14
173.20375	Fixed or mobile	12, 13, 15, 27
173.2100	do	12, 15, 16, 27
173.2375	do	12, 13, 15, 25
173.2625	do	12, 13, 15, 25
173.2875	do	12, 13, 15, 25
173.3125	do	12, 13, 15, 25
173.3375	do	12, 13, 15, 25
173.3625	do	12, 13, 15, 25
173.3900	do	12, 15, 16, 27
173.39625	do	12, 13, 15, 27
216 to 220	Base or mobile	17
406–413	Operational fixed	14
450 to 470	Fixed	18
451.725	Base or mobile	2
451.775	do	2
451.800	Operational fixed, base or mobile.	4, 19
451.825	Base or mobile	2
451.850	do	2
451.875	do	2
451.900	do	2
451.925	do	2
451.950	do	2
451.975	do	2
452.000	do	2
452.025	do	2
452.075	do	2
452.125	do	2
452.175	do	2
456.725	Mobile	2
456.775	do	2
456.800	Operational fixed, base or mobile.	4, 19
456.825	Mobile	2
456.850	do	2
456.875	do	2
456.900	do	2
456.925	do	2
456.950	do	2
456.975	do	2
457.000	do	2
457.025	do	2
457.075	do	2
457.125	do	2
457.175	do	2
470 to 512	Base or mobile	20
806 to 821	Mobile	21
851 to 866	Base or mobile	21
952 and above	Operational fixed	2
1427 to 1435	Operational fixed, base or mobile.	17
2450 to 2500	Base or mobile	23
8400 to 8500	do	24
10,550 to 10,680	do	

(d) Explanation of assignment limitations appearing in the frequency table of paragraph (c) of this section:

(1) Frequencies below 25 MHz will be assigned to base or mobile stations in this service only upon a satisfactory showing that, from a safety of life standpoint, frequencies above 25 MHz will not meet the operational requirements of the applicant.

(2) This frequency will be assigned only for operation in a permanent area, normally within 120 km (75 mi.) of a specified reference point.

(3) Operation on this frequency is limited to a maximum output of 2 watts; and each station authorized will be classified and licensed as a mobile station. Any units of such a station, however, may provide the operational functions of a base or fixed station, on a secondary basis to mobile service operations provided that the separation between the control point and the center of the radiating portion of the antenna of any units so used does not exceed 25 feet (7.6 m).

(4) This frequency will be assigned only to stations used in itinerant operations.

(5) This frequency is shared with the Forest Products Radio Service.

(6) The frequencies available in the band 72–76 MHz are listed in § 90.257(a)(1). These frequencies are shared with other services and are available only in accordance with the provisions of § 90.257.

(7) This frequency is available on a shared basis in the Manufacturers, Special Industrial, and Railroad Radio Services and interservice coordination is required. All communications must be conducted within the boundaries or confines of plant, factory, shipyard, mill, mine, farm, ranch, or construction area. All operations on this frequency are subject to the provisions of § 90.257(b).

(8) This frequency is not available to stations in Puerto Rico or the Virgin Islands. Elsewhere, this frequency is shared with the Forestry-Conservation Radio Service and interservice coordination is required.

(9) This frequency is available in this service and in the Forest Products Radio Service on a secondary basis to one-way paging communications authorized in the Business Radio Service.

(10) This frequency is shared with the Motion Picture Radio Service.

(11) This frequency band is shared with the Petroleum Radio Service.

(12) Operational fixed stations must employ directional antennas having a front-to-back ratio of at least 20 dB. Omnidirectional antennas having unity gain may be employed for stations communicating with at least three receiving locations separated by 160° of azimuth.

(13) For FM transmitters the sum of the highest modulating frequency and the amount of frequency deviation may not exceed 2.8 kHz and the maximum frequency deviation may not exceed 2.5 kHz. For AM transmitters, the highest modulating frequency may not exceed 2.0 kHz. The carrier frequency must be maintained within 0.0005 percent and the authorized bandwidth may not exceed 6 kHz.

(14) This frequency will be assigned only for transmitting hydrological or meteorological data in accordance with the provisions of § 90.265.

(15) This frequency band is shared with the Power, Forest Products, Special Industrial, Petroleum, Manufacturers, Business, and the Local Government Radio Services for remote control and telemetry operations.

(16) For FM transmitters the sum of the highest modulation frequency and the amount of frequency deviation may not exceed 1.7 kHz and the maximum deviation may not exceed 1.2 kHz. For AM transmitters the highest modulating frequency may not exceed 1.2 kHz. The carrier frequency must be maintained within 0.0005 percent and the authorized bandwidth may not exceed 3 kHz.

(17) This frequency band is available to stations in the service subject to the provisions of § 90.259.

(18) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Public Safety and Land Transportation Radio Services where they are assigned for land mobile operations.

(19) Operational fixed assignments on this frequency will only be made to an itinerant fixed control or relay station on a secondary basis to land-mobile stations in this service, provided that the fixed relay or control station is to be associated with base and mobile facilities authorized to use other frequencies available for itinerant operation in this service. All such use of these frequencies for fixed systems is limited to locations 161 or more km. (100 mi). from the center of any urbanized area of 200,000 or more population, except that the distance

may be 120 km. (75 mi.) if the output power does not exceed 20 watts. All such fixed systems are limited to a maximum of two frequencies and must employ directional antennas with a front-to-back ratio of at least 15 dB. The centers of urbanized areas of 200,000 or more population are determined from the appendix, page 226, of the U.S. Commerce publication, "Air Line Distance Between Cities in the United States." Urbanized areas of 200,000 or more population are defined in the U.S. Census of Population, 1960, volume 1, table 23, page 1-50.

(20) Subpart L contains rules for assignment of frequencies in the 470-512 MHz band.

(21) Subpart M contains rules for assignment of frequencies in the 806-821 and 851-866 MHz bands.

(22) Assignment of frequencies for operational-fixed stations in the bands 952 and above is governed by part 94 of this chapter.

(23) Available only on a shared basis with stations in other services, and subject to no protection form interference due to the operation of industrial, scientific or medical (ISM) devices.

(24) Use of this frequency band is limited to developmental operation and is subject to the provisions of subpart P.

(25) The maximum effective radiated power (ERP) may not exceed 20 watts for fixed stations and 2 watts for mobile stations. The height of the antenna system may not exceed 15.24 meters (50 feet) above ground. All such operation is on a secondary basis to adjacent channel land mobile operations.

(26) Use of this frequency is limited to stations located at least 120.7 km (75 miles) from the center of any urbanized area of 200, 000 or more population (U.S. Census of Population, 1970). Operation is on a secondary basis to that in the Power Radio Service.

(27) The maximum output power of the transmitter may not exceed 50 watts for fixed stations and 1 watt for mobile stations. A1, A2, A9, F1, F2, or F9 emission may be authorized.

(e) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service: (See also § 90.253)

(1) Frequencies may be substituted for those available below 25 MHz in accordance with the provisions of § 90.263.

(2) The frequencies 27.235, 27.245, 27.255, 27.265 and 27.275 MHz are available in accordance with § 90.255.

(3) Frequencies in the band 73.0-74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(4) The following frequencies are available only in Puerto Rico and the Virgin Islands. These "Base and Mobile" and "Mobile and Only" frequencies are available on a shared basis in the Forestry-Conservation Railroad Radio Services, respectively. These "Mobile Only" frequencies may be assigned to a control station associated with a mobile relay system if it is also assigned to the associated mobile station. All applications for the assignment of a new frequency, or to change existing facilities in such a manner as to require frequency coordination as specified in § 90.175, shall be accompanied by evidence of frequency coordination with the sharing service.

Base and mobile:	*Mobile only*
159.240	160.410
159.255	160.425
159.270	160.440
159.285	160.455
159.300	160.470
159.315	160.485
159.330	160.500
159.345	160.515
159.360	160.530
159.375	160.545
159.390	160.560
159.405	160.575
159.420	160.590
159.435	160.605

(5) Land mobile service frequencies above 152 MHz which are listed elsewhere in this part as available to the Petroleum, Forest Products, and Manufacturers Radio Services, are also available, with the exception of the frequency 154.57 MHz, for asssignment in this service for use in Hawaii, Puerto Rico, and the Virgin Islands, subject to the same limitations as apply in the Petroleum Forest Products, and Manufacturers Radio Services. Operation on such frequencies is secondary to stations operating in the Petroleum, Forest Products, or Manufacturers Radio Services and their use will be terminated if they are needed in the areas concerned in any of those services.

(f) *Limitation on number of frequencies assignable.* Normally only one frequency, or pair of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with operation of mobile repeaters in accordance with § 90.247, notwithstanding this limitation.

Frequencies in the ranges 30.56-30.57 MHz, 35.00-35.01 MHz, 35,99-36.00 MHz and 37.00-37.01 MHz are available for assignment to applicants in this service subject to the provisions of subpart P notwithstanding this limitation.

(3) Authorization for more than one mobile frequency in the band 72-76 MHz will be issued notwithstanding this limitation.

(4) Frequencies in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands, and the frequency bands 903-904 MHz, 904-912 MHz, 918-926 MHz, and 926-927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

(g) *Limitation on itinerant operation.* Base or mobile stations being utilized in itinerant operation will be authorized only on base or mobile frequencies designated for itinerant operation under § 90.73(d)(4).

§ 90.75 Business radio service.

(a) *Eligibility.* Persons primarily engaged in any of the following activities are eligible to hold authorizations in the Business Radio Service to operate stations for transmission of communications necessary to such activities of the licensee:

(1) The operation of a commercial activity.

(2) The operation of educational, philanthropic, or ecclesiastical institutions.

(3) Clergymen activities.

(4) The operation of hospitals, clinics or medical associations.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Business Radio Service together with the class of station(s) to which they are normally assigned, and the specific assignment limitations, which are explained in paragraph (c) of this section.

Business Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Megahertz:		
27.39	Base or mobile	
27.41	do	
27.43	do	1, 2
27.45	do	1, 2
27.47	do	1, 2
27.49	do	1, 3
27.51	Mobile	4
27.53	do	4
30.76	Base or mobile	1, 2
30.80	do	1, 2
30.84	Mobile	4, 22
30.88	Base or mobile	1, 2
30.92	do	1, 2
30.96	do	1, 2
31.00	do	1, 2
31.04	do	1, 2
31.16	do	1, 2
31.20	do	1, 2
31.24	do	1, 2
33.14	Mobile	4, 22
33.16	Base or mobile	1, 2
33.40	Mobile	6, 22
35.02	do	4, 22
35.04	Base or mobile	1, 3
35.06	do	1, 2
35.08	do	1, 2

Business Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
35.10	do	1, 2
35.12	do	1, 2
35.14	do	1, 2
35.18	do	1, 2
35.70	do	2
35.72	do	2
35.88	do	1, 2
35.90	do	1, 2
35.92	do	1, 2
35.94	do	
35.96	do	
35.98	do	
42.96	Base or mobile	1, 2
42.98	Mobile	4, 22
43.00	Base or mobile	1, 2
72 to 76	Operational fixed	7
150.815	Base or mobile	8
150.845	do	8
150.875	do	8
150.905	do	8
150.935	do	8
150.965	do	8
150.995	do	8
151.025	do	8
151.055	do	8
151.085	do	8
151.115	do	8
151.145	do	8
151.175	do	8
151.205	do	8
151.235	do	8
151.265	do	8
151.295	do	8
151.325	do	8
151.355	do	8
151.385	do	8
151.415	do	8
151.445	do	8
151.475	do	8
151.625	do	1, 3
151.655	do	1, 2
151.685	do	1, 2
151.715	do	1, 2
151.745	do	1, 2
151.775	do	1, 2
151.805	do	1, 2
151.835	do	1, 2
151.865	do	1, 2
151.895	do	1, 2
151.925	do	
151.955	do	
152.300	do	9
152.360	do	9
152.420	do	9
152.480	Base	10, 11, 12
154.45625	Mobile	18, 19, 36
154.46375	do	18, 19, 35, 37
154.47125	do	18, 19, 35
154.47875	do	18, 19, 36
154.515	Base or mobile	1, 2
154.540	do	1, 2
154.570	Mobile	4, 13, 22
154.600	do	4, 14, 22
154.625	Base	10, 11, 15
157.560	Base or mobile	9
157.620	do	9
157.680	do	9
157.740	Base	10, 11, 12, 16
158.460	do	10, 11, 12, 15
169 to 172	Operational fixed	17
173.20375	Mobile	18, 19, 35
173.2100	do	18, 20, 35
173.2375	do	18, 19, 36
173.2625	do	18, 19, 36
173.2875	do	18, 19, 36
173.3125	do	18, 19, 36
173.3375	do	18, 19, 36
173.3625	do	18, 19, 36
173.3900	do	18, 20, 35
173.39625	do	18, 19, 35
216 to 220	Base or mobile	21
406 to 413	Operational fixed	17
457.525	Mobile	4, 14, 22, 23
457.550	do	4, 14, 22, 23
457.575	do	4, 14, 22, 23
457.600	do	4, 14, 22, 23
460.650	Base or mobile	15, 25, 26

Business Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
460.675	do	15, 25, 26
460.700	do	15, 25, 26
460.725	do	15, 25, 26
460.750	do	15, 25, 26
460.775	do	15, 25, 26
460.800	do	15, 25, 26
460.825	do	15, 25, 26
460.850	do	15, 25, 26
460.875	do	15, 25, 26
460.900	Base or mobile	1, 27, 39, 40
460.925	do	1, 27, 39, 40
460.950	do	1, 27, 39, 40
460.975	do	1, 28, 39, 40
461.000	do	1, 28, 39, 40
461.025	do	1, 26
461.050	do	1, 26
461.075	do	1, 26
461.100	do	1, 26
461.125	do	1, 26
461.150	do	1, 26
461.175	do	1, 26
461.200	do	1, 26
461.225	do	1, 26
461.250	do	1, 26
461.275	do	1, 26
461.300	do	1, 26
461.325	do	1, 26
461.350	do	1, 26
461.375	do	1, 26
461.400	do	1, 26
461.425	do	1, 26
461.450	do	1, 26
461.475	do	1, 26
461.500	do	1, 26
461.525	do	1, 26
461.550	do	1, 26
461.575	do	1, 26
461.600	do	1, 26
461.625	do	1, 26
461.650	do	1, 26
461.675	do	1, 26
461.700	do	1, 26
461.725	do	1, 26
461.750	do	1, 26
461.775	do	1, 26
461.800	do	1, 26
461.825	do	1, 26
461.850	do	1, 26
461.875	do	1, 26
461.900	do	1, 26
461.925	do	1, 26
461.950	do	1, 26
461.975	do	1, 26
462.000	do	1, 26
462.025	do	1, 26
462.050	do	1, 26
462.075	do	1, 26
462.100	do	1, 26
462.125	do	1, 26
462.150	do	1, 26
462.175	do	1, 26
462.750	Base	10
462.775	do	10
462.800	do	10
462.825	do	10
462.850	do	10
462.875	do	10
462.900	do	10
462.925	do	10
463.200	Base or mobile	1, 26
463.225	do	1, 26
463.250	do	1, 26
463.275	do	1, 26
463.300	do	1, 26
463.325	do	1, 26
463.350	do	1, 26
463.375	do	1, 26
463.400	do	1, 26
463.425	do	1, 26
463.450	do	1, 26
463.475	do	1, 26
463.500	do	1, 26
463.525	do	1, 26
463.550	do	1, 26
463.575	do	1, 26
463.600	do	1, 26
463.625	do	1, 26

Business Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
463.650	do	1, 26
463.675	do	1, 26
463.700	do	1, 26
463.725	do	1, 26
463.750	do	1, 26
463.775	do	1, 26
463.800	do	1, 26
463.825	do	1, 26
463.850	do	1, 26
463.875	do	1, 26
463.900	do	1, 26
463.925	do	1, 26
463.950	do	1, 26
463.975	do	1, 26
464.000	do	1, 26
464.025	do	1, 26
464.050	do	1, 26
464.075	do	1, 26
464.100	do	1, 26
464.125	do	1, 26
464.150	do	1, 26
464.175	do	1, 26
464.200	do	1, 26
464.225	do	1, 26
464.250	do	1, 26
464.275	do	1, 26
464.300	do	1, 26
464.325	do	1, 26, 29
464.350	do	1, 26
464.375	do	1, 26, 29
464.400	do	1, 26,
464.425	do	1, 26, 29
464.450	do	1, 26
464.475	do	1, 26, 29
464.500	do	1, 3, 36, 30
464.525	do	1, 26, 29
464.550	do	3, 30
464.575	do	1, 26, 29
464.600	do	1, 26
464.625	do	1, 26
464.650	do	1, 26
464.675	do	1, 26, 29
464.700	do	1, 26
464.725	do	1, 26
464.750	do	1, 26
464.775	do	1, 26, 29
464.800	do	1, 26
464.825	do	1, 26, 29
464.850	do	1, 26
464.875	do	1, 26, 29
464.900	do	1, 26
464.925	do	1, 26, 29
464.950	do	1, 26
464.975	do	1, 26, 29
465.000	Base	10, 30
465.650	Mobile	4, 25, 26, 31
465.675	do	4, 25, 26, 31
465.700	do	4, 25, 26, 31
465.725	do	4, 25, 26, 31
465.750	do	4, 25, 26, 31
465.775	do	4, 25, 26, 31
465.800	do	4, 25, 26, 31
465.825	do	4, 25, 26, 31
465.850	do	4, 25, 26, 31
465.875	do	4, 25, 26, 31
465.900	Mobile	1, 27, 39
465.925	do	1, 27, 39
465.950	do	1, 27, 39
465.975	do	1, 28, 39
466.000	do	1, 28, 39
466.025	do	1, 26
466.050	do	1, 26
466.075	do	1, 26
466.100	do	1, 26
466.125	do	1, 26
466.150	do	1, 26
466.175	do	1, 26
466.200	do	1, 26
466.225	do	1, 26
466.250	do	1, 26
466.275	do	1, 26
466.300	do	1, 26
466.325	do	1, 26
466.350	do	1, 26
466.375	do	1, 26
466.400	do	1, 26
466.425	do	1, 26

Business Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
466.450	do	1, 26
466.475	do	1, 26
466.500	do	1, 26
466.525	do	1, 26
466.550	do	1, 26
466.575	do	1, 26
466.600	do	1, 26
466.625	do	1, 26
466.650	do	1, 26
466.675	do	1, 26
466.700	do	1, 26
466.725	do	1, 26
466.750	do	1, 26
466.775	do	1, 26
466.800	do	1, 26
466.825	do	1, 26
466.850	do	1, 26
466.875	do	1, 26
466.900	do	1, 26
466.925	do	1, 26
466.950	do	1, 26
466.975	do	1, 26
467.000	do	1, 26
467.025	do	1, 26
467.050	do	1, 26
467.075	do	1, 26
467.100	do	1, 26
467.125	do	1, 26
467.150	do	1, 26
467.175	do	1, 26
467.750	do	4, 13, 22, 23
467.775	do	4, 13, 22, 23
467.800	do	4, 13, 22, 23
467.825	do	4, 13, 22, 23
467.850	do	4, 13, 22
467.875	do	4, 13, 22
467.900	do	4, 13, 22
467.925	do	4, 13, 22
468.200	do	1, 26
468.225	do	1, 26
468.250	do	1, 26
468.275	do	1, 26
468.300	do	1, 26
468.325	do	1, 26
468.350	do	1, 26
468.375	do	1, 26
468.400	do	1, 26
468.425	do	1, 26
468.450	do	1, 26
468.475	do	1, 26
468.500	do	1, 26
468.525	do	1, 26
468.550	do	1, 26
468.575	do	1, 26
468.600	do	1, 26
468.625	do	1, 26
468.650	do	1, 26
468.675	do	1, 26
468.700	do	1, 26
468.725	do	1, 26
468.750	do	1, 26
468.775	do	1, 26
468.800	do	1, 26
468.825	do	1, 26
468.850	do	1, 26
468.875	do	1, 26
468.900	do	1, 26
468.925	do	1, 26
468.950	do	1, 26
468.975	do	1, 26
469.000	do	1, 26
469.025	do	1, 26
469.050	do	1, 26
469.075	do	1, 26
469.100	do	1, 26
469.125	do	1, 26
469.150	do	1, 26
469.175	do	1, 26
469.200	do	1, 26
469.225	do	1, 26
469.250	do	1, 26
469.275	do	1, 26
469.300	do	1, 26
469.325	do	1, 26
469.350	do	1, 26
469.375	do	1, 26
469.400	do	1, 26
469.425	do	1, 26
469.450	do	1, 26
469.475	do	1, 26
469.500	do	3, 30
469.525	do	1, 26
469.550	do	3, 30
469.575	do	1, 26
469.600	do	1, 26
469.625	do	1, 26
469.650	do	1, 26
469.675	do	1, 26
469.700	do	1, 26
469.725	do	1, 26
469.750	do	1, 26
469.775	do	1, 26
469.800	do	1, 26
469.825	do	1, 26
469.850	do	1, 26
469.875	do	1, 26
469.900	do	1, 26
469.925	do	1, 26
469.950	do	1, 26
469.975	do	1, 26
470 to 512	Base or mobile	32
806 to 821	Mobile	33
851 to 866	Base or mobile	33
952 and above	Operational fixed	34
1427 to 1435	Operational fixed, base or mobile.	21
10,550 to 10,680	Base or mobile	

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b) of this section:

(1) Operation on this frequency is limited to a maximum output power of 110 watts.

(2) This frequency will be assigned only for operation in a permanent area, normally within 120 km (75 mi.) of a specified reference point.

(3) This frequency will be assigned only to stations used in itinerant operations.

(4) Operation on this frequency is limited to a maximum output power of 2 watts; and each station authorized will be classified and licensed as a mobile station. Any units of such a station, however, may provide the operational functions of a base or fixed station on a secondary basis to mobile service operations, *Provided,* That the separation between the control point and the center of the radiating portion of the antenna of any units so used does not exceed 8 m (25 ft.).

(5) [Reserved]

(6) Operation on this frequency is limited to a maximum output power of 1 watt and each station authorized will be classified and licensed as a mobile station. Any units of such a station, however, may provide the operational functions of a base of fixed station on a secondary basis to mobile service operations, *Provided,* That the separation between the control point and the center of the radiating portion of the antenna of any units so used does not exceed 8 m (25 ft.)

(7) The frequencies available in the band 72-76 MHz are listed in § 90.257(a)(1). These frequencies are shared with other services and are available only in accordance with the provisions of § 90.257.

(8) Use of this frequency in this service in limited to stations located in Puerto Rico and the Virgin Islands.

(9) This frequency is shared with Taxicab Radio Service and is available for assignment in the Business Radio Service only to stations which are used exclusively in areas outside of Standard Metropolitan Statistical Areas of 50,000 or more population (1950 Census). Operations on this frequency are on a secondary basis to operations in the Taxicab Radio Service.

(10) This frequency is assigned only for one-way paging communications to mobile receivers. Only A2, A3, F2, or F3 emissions may be authorized.

(11) This frequency is also available for base or mobile stations in the Special Industrial and Forest Products Radio Services on a secondary basis to paging operations in the Business Radio Service.

(12) This frequency will not be assigned to stations for use at temporary locations.

(13) This frequency may be used for mobile operation for radio remote control and telemetering functions. A1, A2, F1, or F2 emission may be authorized and mobile stations used to control remote objects or devices may be operated in the continuous carrier transmit mode.

(14) This frequency may be used for mobile operation for radio remote control and telemetering functions. A1, A2, F1, or F2 emission may be authorized. The use of the continuous carrier transmit mode for these purposes is permitted only for stations authorized and continuously licensed since before May 21, 1971.

(15) Operation on this frequency is limited to a maximum output power of 20 watts.

(16) Operation on this frequency is limited to a maximum output power of 75 watts.

(17) This frequency will be assigned only for transmitting hydrological or meteorological data in accordance with the provisions of § 90.265.

(18) This frequency is available on a shared basis with other Industrial Radio Services as follows: Power, Forest Products, Special Industrial, Petroleum, Manufacturers, Business, and the Local Government Radio Service and may be used in this service only for the purpose of remote control and telemetering.

(19) For FM transmitters the sum of the highest modulating frequency and the amount of frequency deviation may not exceed 2.8 kHz and the maximum frequency deviation may not exceed 2.5 kHz. For AM transmitters the highest modulating frequency may not exceed 2.0 kHz. The carrier frequency must be maintained within

0.0005 percent and the authorized bandwidth may not exceed 6 kHz.

(20) For FM transmitters the sum of the highest modulating frequency and the amount of frequency deviation may not exceed 1.7 kHz, and the maximum frequency deviation may not exceed 1.2 kHz. For AM transmitters the highest modulating frequency may not exceed 1.5 kHz. The carrier frequency must be maintained within 0.0005 percent and the authorized bandwidth may not exceed 3 kHz.

(21) This frequency band is available to stations in this service subject to the provisions of § 90.259.

(22) This frequency may not be used aboard aircraft in flight.

(23) Frequencies subject to this assignment limitation are herein considered collectively for use for communications concerned with cargo handling from a dock, or a cargo handling facility, to a vessel alongside. Any number of the frequencies may be authorized to one licensee for the purpose. Mobile relay stations may be temporarily installed at or in the vicinity of a dock or cargo handling facility and used when a vessel is alongside the dock or cargo handling facility.

Mobile Relay (MHz)	Mobile (MHz)
457.525	467.750
457.550	467.775
457.575	467.800
457.600	467.825

For single frequency simplex: use mobile relay frequencies. The effective radiated power (ERP) on any frequency shall not exceed 2 watts. The center of the radiating system of the onboard repeater antenna shall be located no more than 3 m (10 ft.) above the vessel's highest working deck.

(24) [Reserved]

(25) This frequency is available for assignment to stations located on or near airports serving urbanized areas of 200,000 or more population. U.S. Census of Population, 1960, vol. 1, table 23, page 1-50, and may be assigned only to persons engaged in furnishing commercial air transportation service, or to a nonprofit corporation or association for the purpose of furnishing radio communications service to persons so engaged on a nonprofit cost-sharing basis. Stations on this frequency may be used only in connection with the servicing and supplying of aircraft at the airport. Common frequency signal boosters may be employed in accordance with the following criteria:

(i) The amplified signal is retransmitted only on the exact frequency of the originating base station.

(ii) The booster is equipped with automatic gain control circuitry which will limit the total output of the booster to 500 milliwatts under all conditions.

(iii) All such devices are installed with sufficient isolation between receiving and retransmitting circuits to prevent oscillation.

(iv) The power of any emission except on frequencies within the 460.6375-460.8875 MHz band or on which there is an input signal to the booster, shall be attenuated at least 35 decibels below the total power output of the booster.

(v) In the event control of the booster is impaired due to its activation by signals other than those intended by the licensee to be retransmitted, the licensee shall provide the booster with means of control such that it will be activated only by signals intended to be retransmitted, and boosters so provided with such means of control shall also be provided with an automatic time-delay or clock device which will deactivate the booster not more than 3 minutes after its activation.

(vi) If signal boosters are to be used in conjunction with other facilities, the number of such boosters must be stated on the license application.

This frequency may also be assigned to low power (2 watts or less) stations in the Business Radio Service for use in areas removed by 8 km (5 mi.) from the boundaries of airports serving any urbanized areas of 200,000 or more population, U.S. Census on Population, 1960, vol. 1 table 23, page 1-50. All such use is restricted to confines of an industrial complex or manufacturing yard area. Finally, this frequency is also available for assignment to stations in the Business Radio Service for use at locations removed by 120 or more km (75 mi.) from the boundaries of airports in urbanized areas of 200,000 or more population, U.S. Census of Population, 1960, vol. 1 table 23, page 1-50. Maximum permissible output power is 110 watts for this use.

(26) This frequency may be assigned to fixed stations in the Business Radio Service in accordance with the provisions of § 90.261.

(27) Within the boundaries of urbanized areas of 200,000 or more population, defined in the United States Census of Population, 1960, vol. 1, table 23, page 1-50, this frequency may be used only by persons rendering a central station commercial protection service within the service area of the radio station utilizing the frequency and may be used only for communications pertaining to safety of life and property, and for maintenance or testing of the protection facilities. Central Station commercial protection service is defined as an electrical protection and supervisory service rendered to the public from and by a central station accepted and certified by one or more of the recognized rating agencies, or the Underwriters Laboratories' (UL), or Factory Mutual System. Other stations in the Business Radio Service may be licensed on this frequency only when all base, mobile relay and control stations are located at least 75 miles from the city center or centers of the specified urbanized areas of 200,000 or more population. With respect to combination urbanized areas containing more than one city, 75-mile separation shall be maintained from each city center which is included in the urbanized area. The locations of centers of cities are determined from appendix, page 226, of the U.S. Commerce publication "Air Line Distance Between Cities in the United States."

(28) This frequency may be assigned only to persons rendering a central station commercial protection service, which is defined at 90.75(c)(27), within the service area of the radio station utilizing the frequency.

(29) This frequency will be assigned only to stations whose control point location is within 805 m (½ mi. direct) of the transmitter location. Maximum power output may not exceed 110 watts, and the overall height of the antenna above ground may not exceed 30 m (100 ft.).

(30) Operation on this frequency is limited to a maximum output power of 35 watts.

(31) Maximum permissible power output for stations on airports is 3 watts. Each station authorized on this frequency will be classified and licensed as a mobile station. Any units of such a station, however, may provide the functions of a base station on a secondary basis to mobile service operations provided that the vertical separation between the control point or ground level and the center of the radiating portion of the antenna of any units so used shall not exceed 8 m (25 ft.).

(32) Subpart L contains rules for assignment of frequencies in the 470-512 MHz band.

(33) Subpart M contains rules for assignment of frequencies in the 806-821 and 851-866 MHz bands.

(34) Assignment of frequencies to operational-fixed stations in the bands 952 MHz and above is governed by Part 94 of this Chapter.

(35) The maximum output power of the transmitter may not exceed 1 watt. A1, A2, A9, F1, F2, or F9 emission may be authorized.

(36) The maximum effective radiated power (ERP) may not exceed 2 watts. All operation is on a secondary basis to adjacent channel land mobile operations. All stations will be licensed as a mobile, however, such stations may be used to provide the operational functions of a base or fixed station. When performing such functions, the

height of the antenna system may not exceed 15.24 m (50 feet) above ground.

(37) Use of this frequency is limited to stations located at least 120.7 km (75 miles) from the center of any urbanized area of 200,000 or more population (U.S. Census or Population 1970). Operation is on a secondary basis to that in the Power Radio Service.

(38) This frequency may be used, with the transmitter carrier centered on the designated frequency or 5 kHz above or below the designated frequency, with P0 or P2 emission, using a bandwidth of 5 kHz and a power not to exceed 1 watt peak power output.

(39) Persons who render a central station commercial protection service are authorized to operate fixed stations on this frequency for the transmission of tone or impulse signals on a secondary, noninterference base-to-base/mobile operations subject to the following conditions and limitations.

(i) Secondary fixed operations may be used only for the following purposes.

(A) Indication of equipment malfunction.

(B) Actuation of a device to indicate the presence of an intruder, fire, or other hazardous condition on the property under the protection of the licensee.

(C) Indication of an abnormal condition in facilities under the protection of the licensee that, if not promptly reported, would result in danger to human life.

(D) Transmission, as may be necessary, to verify status of equipment; adjust operating conditions; or correct any abnormal condition.

(E) Confirmation of status, or that an operation or correction has been accomplished.

(ii) The maximum duration of any one nonvoice signal may not exceed 2 seconds and shall not be transmitted more than three times.

(iii) Systems employing automatic interrogation shall be limited to nonvoice techniques and shall not be activated for this purpose more than 10 seconds out of any 60-second period. This 10-second frame includes both transmit and response times.

(iv) The bandwidth shall not exceed that authorized to the licensee for the primary operation on the frequency concerned.

(v) Frequency loading resulting from the use of secondary signaling will not be considered in whole or in part as a justification for authorizing additional frequencies in the licensee's mobile system.

(vi) A mobile service frequency may not be used exclusively for secondary signaling.

(vii) The output power shall not exceed 30 watts (at the remote site).

(viii) A1, A2, A9, F1, F2, or F9 emission may be authorized.

(ix) The transmitter shall be designed to deactivate automatically after 3 minutes of continuous carrier radiation.

(x) Operational fixed stations authorized under this paragraph are exempt from the requirements of §§ 91.54(e)(2), 91.107(e), 91.152, 91.154.

(xi) On these frequencies, base, mobile relay or mobile stations may transmit secondary tone or impulse signals to receivers, as provided in this section.

(40) Licensees providing a central station commercial protection service may communicate with police or fire stations, or vehicles, on this frequency, and may install licensed transmitting units which operate on this frequency at police or fire stations, or in police or fire vehicles, if the frequency's primary use is in a base/mobile system for a central station commercial protection service.

(d) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service. (See also § 90.253.)

(1) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(2) Frequencies in the band 73.0–74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new station will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(3) Licensees holding a valid authorization on January 1, 1973, to operate on the frequencies 406.025, 406.075 MHz may continue to be authorized for such operations until the expiration of their present license on a secondary basis to stations operating in accordance with the table in § 2.106 of this chapter.

(4) Frequencies separated by 12.5 kHz from regularly assigned frequencies in the 457.525–460.650, 460.875–464.975, and 465.875–469.975 MHz bands may be assigned for use by mobile stations of two watts or less output power which may also serve the function of a base, fixed, or mobile relay station. All operation shall be on a secondary, noninterference basis to regularly assigned adjacent frequency operations and shall be entitled to no protection from such stations. Wide area operations will not be authorized. The area of normal day-to-day operation shall be described in the application in terms of a maximum geographic center (latitude and longitude). Mobile stations, when used as fixed stations, shall be exempt from the limitations of § 90.75(e). Antennas of mobile stations used as fixed stations communicating with one or more associated stations located within 45 degrees of azimuth shall be directional and have a front to back ratio of at least 15 dB. Except as provided below, the height of the antenna used at any mobile station serving as a base, fixed or mobile relay station may not exceed 7 m. (20 ft.) above the ground.

(i) No limit shall be placed on the length or height above ground of any commercially manufactured radiating transmission line when the transmission line is terminated in a nonradiating load and is routed at least 7 m. (20 ft.) interior to the edge of any structure or is routed below ground level.

(ii) Sea-Based stations may utilize antennas mounted not more than 7 m. (20 ft.) above the man-made supporting structure, excluding antenna structures.

(5) Low-power mobile stations of 100 mW or less output power may be assigned any frequency separated by 12.5 kHz from a regularly assigned frequency in the bands 460.650–460.875 MHz and 465.650–465.875 MHz listed in paragraph (c) of this section, for one-way, non-voice biomedical telemetry operations in hospitals, or in medical or convalescent centers.

(e) *Limitation on number of frequencies assignable.* Normally only one frequency, or pair of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with operation of mobile repeaters in accordance with § 90.247, notwithstanding this limitation.

(2) Frequencies in the ranges 30.56–30.57 MHz, 35.00–35.01 MHz, 35.99–36.00 MHz, and 37.00–37.01 MHz are available for assignment to applicants in this service subject to the provisions of subpart P, notwithstanding this limitation.

(3) Frequencies in the 457 and 467 MHz bands may be assigned collectively as provided by paragraph (c)(23) of this section notwithstanding this limitation.

(4) Frequencies in the 25–50 MHz, 150–170 MHz, and 450–512 MHz bands, and the frequencies bands 903–904 MHz, 904–912 MHz, 918–926 MHz, and 926–927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239 notwithstanding this limitation.

(f) *Limitation on itinerant operation.* Base or mobile stations being utilized in itinerant operation will be authorized only on base or mobile frequencies designated for itinerant operation under § 90.75(c)(12).

§ 90.79 Manufacturers radio service.

(a) *Eligibility.* Persons primarily engaged in any of the following manufacturing activities are eligible to hold authorizations in the Manufacturers Radio Service to operate radio stations for transmission of communications essential to such activities of the licensee:

(1) The mechanical or chemical transformation of substances into new products within such establishments as plants, factories, shipyards, or mills which employ, in that process, power-driven machines and materials-handling equipment.

(2) The assembly of components of manufactured products within such establishments as plants, factories, shipyards, or mills where the new product is neither a new structure nor other fixed improvement. Establishments primarily engaged in the wholesale or retail trade, or in service activities, even though they fabricate or assemble any or all the products or commodities handled, are not eligible in this service.

(3) The providing of supporting services or materials by a corporation to its parent corporation, to another subsidiary of its parent or to its own subsidiary, where such supporting services or materials are directly related to those regular activities of such parent or subsidiary which constitute the basis for eligibility in this service.

(b) *Special limitations on use.* The following limitations are applicable to the use of stations in this service:

(1) Authorized stations may be used only for the transmission of communications related to the operation of the plant, such as for security, production control or materials-handling. Communications related to the retail distribution of the licensees products are not permitted.

(2) Base station will only be authorized in this service for operation at specified and permanent locations.

(c) *Frequencies available.* The following table indicated frequencies available for assignment to stations in the Manufacturers Radio Service, together with the class of stations(s) to which they are normally assigned and the specific assignment limitations which are explained in paragraph (d) of this section:

Manufacturers Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Megahertz		
72.02	Mobile	1, 2
72.04	do	1, 2
72.06	do	1, 2
72.08	do	1, 2, 3
72.10	do	1, 2
72.12	do	1, 2
72.14	do	1, 2
72.16	do	1, 2, 3

Manufacturers Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
72.18	do	1, 2
72.20	do	1, 2
72.22	do	1, 2
72.24	do	1, 2, 3
72.26	do	1, 2
72.28	do	1, 2
72.30	do	1, 2
72.32	do	1, 2, 3
72.34	do	1, 2
72.36	do	1, 2
72.38	do	1, 2
72.40	do	1, 2, 3
72.44	do	2, 4
72.48	do	2, 2
72.52	do	2, 4
72.56	do	2, 4
72.60	do	2, 4
75.44	do	2, 4
75.48	do	2, 4
75.52	do	2, 4
75.56	do	2, 4
75.60	do	2, 4
153.050	Base or mobile	5
153.065	do	5
153.080	do	5
153.095	do	5
153.110	do	5
153.125	do	5
153.140	do	5
153.155	do	5
153.170	do	5
153.185	do	5
153.200	do	5
153.215	do	5
153.230	do	5
153.245	do	5
153.260	do	5
153.275	do	5
153.290	do	5
153.305	do	5
153.320	do	5
153.335	do	5
153.350	do	5
153.365	do	5
153.380	do	5
153.395	do	5
154.45625	Mobile	6, 9, 10, 19
154.46375	do	6, 7, 9, 10, 19
154.47125	do	6, 7, 9, 10
154.47875	do	6, 9, 10, 19
158.280	do	5
158.295	do	5
158.310	do	5
158.325	do	5
158.415	do	5
158.430	do	5
173.20375	Fixed or mobile	6, 7, 9, 10
173.2100	do	7, 8, 9, 10
173.2375	do	6, 9, 10, 19
173.2625	do	6, 9, 10, 19
173.2875	do	6, 9, 10, 19
173.3125	do	6, 9, 10, 19
173.3375	do	6, 9, 10, 19
173.3625	do	6, 9, 10, 19
173.3900	do	7, 8, 9, 10
173.39625	do	6, 7, 9, 10
216–220	Base of mobile	11
450–470	Fixed	12
451.175	Base or mobile	13
451.225	do	13
451.275	do	13
351.375	do	13
451.475	do	13
451.525	do	13
451.575	do	13
451.625	do	13
451.675	do	13
456.175	Mobile	13
456.225	do	13
456.275	do	13
456.375	do	13
456.425	do	13
456.475	do	13
456.525	do	13
456.575	do	13
456.625	do	13
456.675	do	13

Manufacturers Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
462.200	Base or mobile	
462.225	do	
462.250	do	
462.275	do	
462.300	do	
462.325	do	
462.350	do	
462.375	do	
462.400	do	
462.425	do	
462.450	do	
462.475	do	13
462.500	do	
462.525	do	13
467.200	Mobile	
467.225	do	
467.250	do	
467.275	do	
467.300	do	
467.325	do	
467.350	do	
467.375	do	
467.400	do	
467.425	do	
467.450	do	
467.475	do	13
467.500	do	
467.525	do	13
470–512	Base or mobile	14
806–821	Mobile	15
815–866	Base or mobile	15
952 and above	Operational fixed	16
1427 to 1435	Operational fixed, base or mobile	1
2450 to 1435	Base or mobile	17
8400 to 8500	do	18
10,550 to 10,680	do	

(d) Explanation of assignment limitations appearing in the frequency tabulation of paragraph (c) of this section:

(1) This frequency is shared with fixed stations in other services and is subject to no protection from interference.

(2) All communications on this frequency must be conducted within the boundaries or confines of plant, factory, shipyards, mill, or other manufacturing area. All operations on this frequency are subject to the provisions of § 90.275(b).

(3) This frequency is shared with the Radio Control (R/C) Service, part of the Personal Radio Services, where it is used solely for the radio control of models.

(4) This frequency is available on a shared basis in the Manufacturers, Special Industrial and Railroad Radio Services and interservice coordination is required.

(5) This frequency is shared with the Forest Products and Petroleum Radio Services. The output power of transmitters operating on this frequency shall not exceed 110 watts.

(6) For FM transmitters the sum of the highest modulating frequency in hertz and the amount of frequency deviation or swing in hertz may not exceed 2800 Hz and the maximum frequency deviation may not exceed 2.5 kHz. For AM transmitters the highest

modulating frequency may not exceed 2000 Hz. The carrier frequency must be maintained within 0.0005 percent of the center of the frequency band, and the authorized bandwidth may not exceed 6 kHz.

(7) In this frequency band the maximum power output of the transmitter may not exceed 50 watts for fixed stations and 1 watt for mobile stations. A1, A2, F1, or F2 emission may be authorized, and mobile stations used to control remote objects and devices may be operated in the continuous transmit mode.

(8) For FM transmitters the sum of the highest modulating frequency in hertz and the amount of frequency deviation or swing in hertz may not exceed 1700 Hz and the maximum deviation may not exceed 1.2 kHz. For AM transmitters the highest modulating frequency may not exceed 1200 Hz. The carrier frequency must be maintained within 0.0005 percent of the center of the freqency band, and the authorized bandwidth may not exceed 3 kHz.

(9) This frequency band is available on a shared basis with the Local Government and several Industrial Radio Services. Evidence of interservice coordination is required.

(10) Operational fixed stations must employ directional antennas having a front-to-back ratio of at least 20 db. Omnidirectional antennas having unity gains may be employed for stations communicating with at least three receiving locations separated by 160° of azimuth.

(11) This frequency band is available to stations in this service in this service subject to the provisions of § 90.259.

(12) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is on a secondary basis to stations in the Public Safety and Land Transportation Radio Services where they are assigned for land mobile operations.

(13) This frequency is available on a shared basis in the Power Petroleum, Forest Products, Manufacturers, and Telephone Maintenance Radio Services. It may be assigned only when all of the frequences in the 450-470 MHz band allocated to the service in which the applicant is primarily eligible are assigned within 56 km. (35 mi.) of the proposed base station. Applications for this frequency must be coordinated with all five services.

(14) Subpart L contains rules for assignment of frequencies in the 470-512 MHz band.

(15) Subpart M contains rules for assignment of frequencies in the 806-821 and 851-866 MHz bands.

(16) Assignment of frequencies for operational-fixed stations in the bands 952 MHz and above is governed by part 94 of this chapter.

(17) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific or medical (ISM) devices.

(18) Use of this frequency band is limited to developmental operation and is subject to the provisions of subpart P.

(19) The maximum effective rediated power (ERP) may not exceed 20 watts for fixed stations and 2 watts for mobile stations and the height of the antenna system may not exceed 15.24 meters (50 feet) above ground. All such operation is on a secondary basis to adjacent channel land mobile operations.

(20) Use of this frequency is limited to stations located at least 120.7 km (75 miles) from the center of any urbanized area of 200,000 or more population (U.S Census of Population, 1970). Operation is on a second any basis to that in the Power Radio Service.

(e) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service: (See also 90.253.)

(1) Frequencies may be substituted for those available below 25 MHz in accordance with the provisions of § 90.263.

(2) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(3) Frequencies in the band 73.0-74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(f) *Limitation on number of frequencies assignable.* Normally only one frequency or pair of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with operation of mobile repeaters in accordance with § 90.247 notwithstanding this limitation.

(2) Frequencies in the ranges 30.56-30.57 MHz, 35.00-35.01 MHz, 35.99-36.00 MHz, and 37.00-37.01 MHz are available for assignment to applicants in this service subject to the provisions of subpart P notwithstanding this limitation.

(3) Frequencies in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands, and the frequency bands 903-904 MHz, 904-912 MHz, 918-926 MHz, and 926-927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

§ 90.81 Telephone Maintenance Radio Service.

(a) *Eligibility.* Communications common carriers primarily engaged in rendering a wire-line or wire-line and radio communications service to the public for hire, and radio communications common carriers authorized in the Point-to-Point Microwave Radio Service under part 21 are eligible to hold authorizations in the Telephone Maintenance Radio Service to operate radio stations for transmission of communications in accordance with paragraph (b) of this section.

(b) *Special limitations on use.* The facilities authorized in this service shall only be used for transmission of communications directly related to the construction, repair, maintenance or operation of communications common carrier facilities. The facilities authorized in this service shall not be used for administrative or other sales related business activities of the licensee, nor for the transmission of any common carrier or public correspondence communication.

(c) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Telephone Maintenance Radio Service, together with the class of station(s) to which they are normally assigned and the specific assignment limitations which are explained in paragraph (d) of this section:

Telephone Maintenance Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Megahertz:		
35.16	Base or mobile	1
43.16	Mobile	1
151.985	Base or mobile	1
158.34	Mobile	1
216 to 220	Base or mobile	2
450 to 470	Fixed	3
451.175	Base or mobile	4
451.225	do	4
451.275	do	4
451.300	do	1
451.325	do	1
451.350	do	1
451.375	do	4
451.400	do	1
451.425	do	4
451.450	do	1
451.475	do	4
451.500	do	1
451.525	do	4
451.575	do	4
451.625	do	4
451.675	do	4
456.175	Mobile	4
456.225	do	4
456.275	do	4
456.300	do	1, 5
456.325	do	1, 5
456.350	do	1, 5

Telephone Maintenance Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
456.375	....do	4
456.400	....do	1, 5
456.425	....do	4
456.450	....do	1, 5
456.475	....do	4
456.500	....do	1, 5
456.525	....do	4
456.575	....do	4
456.625	....do	4
456.675	....do	4
462.475	Base or mobile	4
462.525	....do	4
467.475	Mobile	4
467.525	....do	4
470 to 512	Base or mobile	6
806 to 821	Mobile	7
851 to 866	Base or mobile	7
952 and above	Operational fixed	8
1427 to 1435	Operational fixed, base or mobile.	2
2450 to 2500	Base or mobile	9
8400 to 8500	....do	10
10,550 to 10,680	....do	

(d) Explanation of assignment limitations appearing in the frequency table of paragraph (c) of this section:

(1) This frequency may be assigned only to a communications common carrier primarily engaged in rendering a wire-line or wire-line and radio communications service to the public for hire.

(2) This frequency band is available to stations in this service subject to the provisions of § 90.259.

(3) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Public Safety and Land Transportation Radio Services where they are assigned for land mobile operations.

(4) This frequency is available on a shared basis in the Power, Petroleum, Forest Products, Manufacturers, and Telephone Maintenance Radio Services. Except for assignments made to non-wire-line radiocommunications common carriers authorized in the Point-to-Point Microwave Radio Service under part 21 it may be assigned only when all of the base and mobile frequencies in the 450-470 MHz band for which the applicant is primarily eligible are assigned within 35 miles (56 km) of the proposed base station. Applications for this frequency must be coordinated with all five services.

(5) This frequency may be assigned to auxiliary test stations.

(6) Subpart L contains rules for assignment of frequencies in the 470-512 MHz band.

(7) Subpart M contains rules for assignment of frequencies in the 806-821 and 851-866 MHz bands.

(8) Assignment of frequencies to operational-fixed stations in the bands 952 and above is governed by part 94 of this chapter.

(9) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific or medical (ISM) devices.

(10) Use of this frequency band is limited to developmental operation and is subject to the provisions of subpart P.

(e) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service: (See also § 90.253.)

(1) The frequencies 27.235, 27.245, 27.255., 27.265, and 27.275 MHz are available in accordance with § 90.255.

(2) Frequencies in the band 73.0-74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(f) *Limitation on number of frequencies assignable.* Normally only one frequency, or pair of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with operation of mobile repeaters in accordance with § 90.247 notwithstanding this limitation;

(2) Frequencies in ranges 30.56-30.57 MHz, 35.00-35.01 MHz, 35.99-36.00 MHz, and 37.00-37.01 MHz are available for assignment of applicants in this service subject to the provisions of subpart P notwithstanding this limitation.

(3) Frequencies in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands, and the frequency bands 903-904 MHz, 904-912 MHz, 918-926 MHz, and 926-927 MHz may be assigned for the operation of automatic vehicle monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

Subpart E—Land Transportation Radio Services

§ 90.85 Scope.

The Land Transportation Radio Services include the motor carrier, Railroad, Taxicab and Automobile Emergency Radio Services. Rules as to eligibility for licensing, permissible communications, assignable frequencies, and any special requirements as to each of these radio services are set forth in the following sections.

§ 90.87 General eligibility.

In addition to the eligibility shown in each Land Transportation Radio Service, eligibility is also provided for any corporation proposing to furnish nonprofit radiocommunication service to its parent corporation, to another subsidiary of the same parent, or to its own subsidiary provided the party served is regularly engaged in any of the eligibility activities set forth in the particular service involved. Eligibility is also provided for a nonprofit corporation or association that is organized for the purpose of furnishing a radiocommunication service to persons actually engaged in any of the eligibility activities set forth in the particular service involved subject to the cooperative use provisions of § 90.179.

§ 90.89 Motor carrier radio service.

(a) *Eligibility.* Persons primarily engaged in providing a common or contract motor carrier transportation service in any of the following activities are eligible to hold authorizations in the Motor Carrier Radio Service to operate radio stations for transmission of communications essential to such activities of the licensee. For purposes of this rule, an urban area is defined as being one or more contiguous, incorporated or unincorporated cities, boroughs, towns, or villages, having aggregate population or 2,500 or more persons.

(1) The transportation of passengers between urban areas.

(2) The transportation of property between urban areas.

(3) The transportation of passengers within a single urban area.

(4) The transportation local distribution or collection of property within a single urban area.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Motor Carrier Radio Service, together with the class of station(s) to which they are normally assigned; and the specific assignment limitations, which are explained in paragraph (c) of this section:

Motor Carrier Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Megahertz:		
30.66	Base or mobile	1, 2
30.74	....do	1, 2
30.82	....do	1, 2
30.86	....do	1, 3
30.90	....do	1, 3
30.94	....do	1, 3
30.98	....do	1, 3
31.02	....do	1, 3
31.06	....do	1, 3
31.08	....do	1
31.10	....do	1, 3
31.12	....do	1
31.14	....do	1, 3
43.70	....do	4
43.72	....do	4
43.74	....do	4
43.76	....do	4
43.78	....do	4
43.80	....do	4

Motor Carrier Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
43.82	do	4
43.84	do	4
43.86	do	5, 6
43.88	do	5, 6
43.90	do	5, 6
43.92	do	5, 6
43.94	do	5, 6
43.96	do	5
43.98	do	5
44.00	do	5
44.02	do	5
44.04	do	5
44.06	do	5
44.08	do	5
44.10	do	5
44.12	do	5
44.14	do	5
44.16	do	5
44.18	do	5
44.20	do	5
44.22	do	5
44.24	do	5
44.26	do	5
44.28	do	5
44.30	do	5
44.32	do	5
44.34	do	5
44.36	do	5, 6
44.38	do	5, 6
44.40	do	5, 6
44.42	do	5, 6
44.44	do	5, 6
44.46	do	1
44.48	do	1
44.50	do	1
44.52	do	1
44.54	do	1
44.56	do	1
44.58	do	1
44.60	do	1
72.0–76.0	Operational fixed	7
159.495	Base or mobile	8
159.510	do	8
159.525	do	8
159.540	do	8
159.555	do	8
159.570	do	8
159.585	do	8
159.600	do	8
159.615	do	8
159.630	do	8
159.645	do	8
159.660	do	8
159.675	do	8
159.690	do	8
159.705	do	8
159.720	do	8
159.735	do	8
159.750	do	8
159.765	do	8
159.780	do	8
159.795	do	8
159.810	do	8
159.825	do	8
159.840	do	8
159.855	do	8
159.870	do	8
159.885	do	8
159.900	do	8
159.915	do	8
159.930	do	8
159.945	do	8
159.960	do	8
159.975	do	8
159.990	do	8
160.005	do	8
160.020	do	8
160.035	do	8
160.050	do	8
160.065	do	8
160.080	do	8
160.095	do	8
160.110	do	8
160.125	do	8
160.140	do	8
160.155	do	8
160.170	do	8

Motor Carrier Radio Service Frequency Table—Continued

Frequency or band	Class of station(s)	Limitations
160.185	do	8
160.200	do	8
450–470	Fixed	9
452.325	Base or mobile	10
452.375	do	10
452.425	do	10
452.475	do	10
452.625	do	
452.650	do	
452.675	do	
452.700	do	
452.725	do	
452.750	do	
452.775	do	10
452.800	do	
452.825	do	10
452.850	do	
452.875	do	10
457.325	Mobile	10
457.375	do	10
457.465	do	10
457.475	do	10
457.625	do	
457.650	do	
457.675	do	
457.700	do	
457.725	do	
457.750	do	
457.775	do	10
457.800	do	
457.825	do	10
457.850	do	
457.875	do	10
470 to 512	Base or mobile	11
806 to 821	Mobile	12
851 to 866	Base or mobile	12
952 and above	Operational fixed	13
1427 to 1435	Operational fixed, base or mobile.	14
2450 to 2500	Base or mobile	15
8400 to 8500	do	16
10,550 to 10,680	do	

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b) of this section:

(1) This frequency is available for assignment in this service only to common and contract motor carriers of passengers within a single urban area.

(2) This frequency is available on a shared basis with the Petroleum Radio Service.

(3) This frequency is available on a shared basis with stations in the Forestry-Conservation Radio Service.

(4) This frequency is available for assignment in this service only to common and contract motor carriers of passengers between urban areas.

(5) This frequency is available for assignment in this service only to common and contract motor carriers of property between urban areas.

(6) In addition to single frequency operation, this frequency is available to base and mobile stations for the paired frequency mode of operation. For two frequency systems, the separation between base and mobile transmit frequencies is 500 kHz with the base stations transmitting on the higher of the two frequencies.

(7) The frequencies available for use at operational fixed stations in the band 72–76 MHz are listed in § 90.257(a)(1). These frequencies are shared with other services and are available only in accordance with the provisions of § 90.257.

8. This frequency is available for assignment in this service only to common and contract motor carriers of property.

(9) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Public Safety and Industrial Radio Services where they are assigned for land mobile operations.

(10) This frequency is shared in the Motor Carrier and Railroad Radio Services. It may be assigned only when all of the frequencies in the 450–460 MHz band allocated to the service in which the applicant is primarily eligible are assigned within 35 miles (56 km) of the proposed base station. Applications for these frequencies must be coordinated with all services involved.

(11) Subpart L contains rules for assignment of frequencies in the 470–512 MHz band.

(12) Subpart M contains rules for assignment of frequencies in 806–821 and 851–866 MHz bands.

(13) Assignment of frequencies for operational-fixed stations in the bands 952 MHz and above is governed by part 94 of this chapter.

(14) This frequency is available to stations in this service subject to the provisions of § 90.259.

(15) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific, or medical (ISM) devices.

(16) Use of this frequency band is limited to developmental operation and is subject to the provisions of subpart P.

(d) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service: (See also § 90.253.)

(1) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(2) Frequencies in the band 73.0–74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(3) The frequency band 33.00–33.01 MHz may be used for developmental operations subject to the provisions of subpart P. Any type of emission other than pulsed emission may be used if the bandwidth occupied by the emission is contained within the assigned frequency band.

(e) *Limitation on number of frequencies assignable.* Normally only one frequency, or pair of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with operation of mobile repeaters in accordance with § 90.247, notwithstanding this limitation.

(2) Frequencies in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands, and the frequency bands 903-904 MHz, 904-912 MHz, 918-926 MHz, and 926-927 MHz may be assigned for the operation of Automatic Vehicle (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

§ 90.91 Railroad radio service.

(a) *Eligibility.* Railroad common carriers which are regularly engaged in the transportation of passengers or property when such passengers or property are transported over all or part of their route by railroad are eligible to hold authorizations in the Railroad Radio Service to operate radio stations for transmission of communications and to assure safety of operations essential to such activities of the licensee.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Railroad Radio Service, together with the class of station(s) to which they are normally assigned; and the specific assignment limitations, which are explained in paragraph (d) of this section:

Railroad Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Megahertz:		
72.0 to 76.0	Operational fixed	1
72.44	Mobile	2
72.48	do	2
72.52	do	2
72.56	do	2
76.60	do	2
75.44	do	2
75.48	do	2
75.52	do	2
75.56	do	2
75.60	do	2
160.215	Base or mobile	3, 4
160.230	do	3, 4
160.245	do	3, 4
160.260	do	3, 4
160.275	do	3, 4
160.290	do	3, 4
160.305	do	3, 4
160.320	do	3, 4
160.335	do	3, 4
160.350	do	3, 4
160.365	do	3, 4
160.380	do	3, 4
160.395	do	3, 4
160.410	do	3, 4, 5
160.425	do	3, 4, 5
160.440	do	3, 4, 5
160.455	do	3, 4, 5
160.470	do	3, 4, 5
160.485	do	3, 4, 5
160.500	do	3, 4, 5
160.515	do	3, 4, 5
160.530	do	3, 4, 5
160.545	do	3, 4, 5
160.560	do	3, 4, 5
160.575	do	3, 4, 5
160.590	do	3, 4, 5
160.605	do	3, 4, 5
160.620	do	3, 4
160.635	do	3, 4
160.650	do	3, 4
160.665	do	3, 4
160.680	do	3, 4
160.695	do	3, 4
160.710	do	3, 4
160.725	do	3, 4
160.740	do	3, 4
160.755	do	3, 4
160.770	do	3, 4
160.785	do	3, 4
160.800	do	3, 4
160.815	do	3, 4
160.830	do	3, 4
160.845	do	3, 4
160.860	do	3, 4, 6
160.875	do	3, 4, 6
160.890	do	3, 4, 6
160.905	do	3, 4, 6
160.920	do	3, 4, 6
160.935	do	3, 4, 6
160.950	do	3, 4, 6
160.965	do	3, 4, 6
160.980	do	3, 4, 6
160.995	do	3, 4, 6
161.010	do	3, 4, 6
161.025	do	3, 4, 6
161.040	do	3, 4, 6
161.055	do	3, 4, 6
161.070	do	3, 4, 6
161.085	do	3, 4, 6
161.100	do	3, 4, 6
161.115	do	3, 4, 6
161.130	do	3, 4, 6
161.145	do	3, 4, 6
161.160	do	3, 4, 6
161.175	do	3, 4, 6
161.190	do	3, 4, 6
161.205	do	3, 4, 6
161.220	do	3, 4, 6
161.235	do	3, 4, 6
161.250	do	3, 4, 6
161.265	do	3, 4, 6
161.280	do	3, 4, 6
161.295	do	3, 4, 6
161.310	do	3, 4, 6
161.325	do	3, 4, 6
161.340	do	3, 4, 6
161.355	do	3, 4, 6
161.370	do	3, 4, 6
161.385	do	3, 4, 7
161.400	do	3, 4, 7
161.415	do	3, 4, 7
161.430	do	3, 4, 7
161.445	do	3, 4, 7
161.460	do	3, 4, 7
161.475	do	3, 4, 7
161.490	do	3, 4, 7
161.505	do	3, 4, 7
161.520	do	3, 4, 7
161.535	do	3, 4, 7
161.550	do	3, 4, 7
161.565	do	3, 4, 7
169-172	Operational fixed	8
406-413	do	8
450-470	do	9
452.325	Base or mobile	10
452.375	do	10
452.425	do	10
452.475	do	10
452.775	do	10
452.825	do	10
452.875	do	10
452.900	do	
452.925	do	11
452.950	do	11
457.325	Mobile	10
457.375	do	10
457.425	do	10
457.475	do	10
457.775	do	10
457.825	do	10
457.875	do	10
457.900	do	
457.925	do	11
457.950	do	11
470 to 512	Base or mobile	12
806 to 821	Mobile	13
851 to 866	Base or mobile	13
952 and above	Operational fixed	14
1427 to 1435	Operational fixed, base or mobile.	15
2450 to 2500	Base or mobile	16
8400 to 8500	do	17
10,550 to 10,680	do	

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (c) of this section:

(1) The frequencies available for assignment to operational fixed stations in the band 72.0 to 76.0 MHz are listed in § 90.257(a)(1). These frequencies which are shared with other services, are available only in accordance with the provisions of § 90.257.

(2) This frequency is available on a shared basis in the Manufacturers, Special Industrial, and Railroad Radio Services and interservice coordination is required. All communications must be conducted within the boundaries or confines of railroad terminals or yards. All operations on this frequency are subject to the provisions of § 90.257(b).

(3) This frequency may be used for the following:

(i) End-to-end, fixed point-to-train, or train-to-train communications in connection with the operation or railroad trains over a track, in yards, or tracks extending through yards and between stations upon which trains are operated by timetable, train order, or both, or the use of which is governed by block signals.

(ii) Intercommunication between adjacent base stations, provided interference is not caused to communications involving radio stations aboard railroad rolling stock.

(iii) Transmission of tone signals for signaling purposes or for remote control of locomotives, including slave locomotives placed within a train to assist the lead locomotive by providing, among other functions auxiliary starting, pulling, and braking actions; and radio controlled cab indicator devices that are placed within a locomotive to give visual signals to the operator of the locomotive.

(4) This frequency may also be used for the transmission of tone or voice communications, including such communications when prerecorded, for

purposes of automatically indicating abnormal conditions of trackage and railroad rolling stock when in motion, on a secondary basis to other stations on this frequency. All such operations shall be subject to the following:

(i) The output power shall not exceed 30 watts.

(ii) The bandwidth used shall not exceed that authorized to the licensee for voice transmissions on the frequency concerned.

(iii) The station shall be so designed and installed that it can normally be activated only by its associated automatic control equipment and, in addition, it shall be equipped with a time delay or clock device which will deactivate the station within three (3) minutes following activation by the last car in the train.

(iv) Stations authorized pursuant to the provisions of this subparagraph are exempt from the station identification requirements of § 90.425.

(5) This frequency is shared with and must be coordinated with the Special Industrial Radio Service in Puerto Rico and the Virgin Islands.

(6) In Puerto Rico and the Virgin Islands only, this frequency is available on a shared basis with remote pickup broadcast stations.

(7) In Puerto Rico and the Virgin Islands only, this frequency is not available to stations operating in the Railroad Radio Service.

(8) This frequency will be assigned only for transmitting hydrological or meteorological data in accordance with the provisions of § 90.265.

(9) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Public Safety and Industrial Radio Services where they are assigned for land mobile operations.

(10) This frequency is shared in the Motor Carrier and Railroad Radio Services. It may be assigned only when all of the frequencies in the 450–460 MHz band allocated to the service in which the applicant is primarily eligible are assigned within 35 miles (56 km) of the proposed base station. Applications for this frequency must be coordinated with all services involved.

(11) This frequency may be assigned primarily for stations used for the purpose of controlling slave locomotives that are placed within a train to assist the lead locomotive by providing, among other functions, auxiliary starting, pulling, and braking actions. Additionally, on a secondary basis this frequency may be assigned for remote control of all types of locomotives and, within a railroad yard or terminal area, for remote control of cab indicator devices placed with a locomotive to give visual signals to the operator of the locomotive. (A1, A2, F1 or F2 emissions may be authorized.)

(12) Subpart L contains rules for assignment of frequencies in the 470–512 MHz band.

(13) Subpart M contains rules for assignment of frequencies in the 806–821 and 851–866 MHz bands.

(14) Assignment of frequencies for operational-fixed stations in the band 952 MHz and above is governed by Part 94 of this Chapter.

(15) This frequency band is available to stations in this services subject to the provisions of § 90.259.

(16) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific or medical (ISM) devices.

(17) Use of this frequency band is limited to developmental operation and is subject to the provisions of subpart P.

(d) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service: (See also 90.253).

(1) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(2) Frequencies in the band 73.0–74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257.)

(3) Base and mobile stations authorized as of April 1, 1968, to operate on frequency 161.61 MHz may continue to be authorized for such operation on a secondary basis to the Maritime Mobile Service. The licensees of such stations may renew, modify, reinstate, or assign their licenses in those cases where such assignment accompanies a change of ownership of the licensee's business to the assignee, and may expand existing systems when using that frequency; however, they will not be authorized to establish any new systems on the frequency.

(4) Stations authorized for operation on or before June 11, 1962, on the frequencies 169.575, 170.375, 171.175, 171.975, or 406.050 MHz may continue to be authorized for such operation on a secondary basis to Government stations.

(5) The frequency band 33.00–33.01 MHz may be used for developmental operation subject to the provisions of subpart P. Any type of emission other than pulsed emission may be used if the bandwidth occupied by the emission is contained within the assigned frequency band.

(e) *Limitation on number of frequencies assignable.* Normally only one frequency, or pair of frequencies in the paired frequency mode of operation, will be assigned from mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with operation of mobile repeaters in accordance with § 90.247 notwithstanding this limitation.

(2) Frequencies in the 25–50 MHz, 150–170 MHz, and 450–512 MHz bands, and the frequency bands 903–904 MHz, 904–912 MHz, 918–926 MHz, and 926–927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

§ 90.93 Taxicab Radio Service.

(a) *Eligibility.* Persons regularly engaged in furnishing to the public for hire a nonscheduled passenger land transportation service (which may also include the occasional transport of small items of property) not operated over a regular route or between established terminals are eligible to hold authorizations in the Taxicab Radio Service to operate radio stations for the transmission of communications essential to such activities of the licensee.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Taxicab Radio Service, together with the class of station(s) to which they are normally assigned; and the specific assignment limitations, which are explained in paragraph (c) of this section:

Taxicab Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Megahertz:		
152.270	Base or mobile	
152.285	do	1
152.300	do	1, 2
152.315	do	1
152.330	do	
152.345	do	1
152.360	do	1, 2
152.375	do	1
152.390	do	
152.405	do	1
152.420	do	1, 2
152.435	do	1
152.450	do	
157.530	Mobile	
157.545	do	1
157.560	do	1, 2
157.575	do	1
157.590	do	
157.605	do	1
157.620	do	1, 2
157.635	do	1
157.650	do	
157.665	do	1
157.680	do	1, 2
157.695	do	1
157.710	do	
450 to 470	Fixed	3
452.050	Base or mobile	
452.100	do	10
452.150	do	

Taxicab Radio Service Frequency Table— Continued

Frequency or band	Class of station(s)	Limitations
452.200	do	10
452.225	do	10
452.250	do	10
452.275	do	10
452.300	do	
452.350	do	10
452.400	do	10
452.450	do	
452.500	do	
457.050	Mobile	10
457.100	do	10
457.150	do	10
457.200	do	10
457.225	do	10
457.250	do	10
457.275	do	10
457.300	do	10
457.350	do	10
457.400	do	10
457.450	do	10
457.500	do	10
470–512	Base or mobile	4
806 to 821	Mobile	5
851 to 866	Base or mobile	5
952 and above	Operational fixed	6
1427 to 1435	Base, mobile, or operational fixed.	7
2450 to 2500	Base or mobile	8
8400 to 8500	do	9
10,550 to 10,680	do	

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b) of this section:

(1) This frequency is available for assignment only to base or mobile stations operating wholly within Standard Metropolitan Areas having 50,000 or more population (1950 Census).

(2) This frequency is available on a secondary basis to Business Radio Service licensees for use at stations outside Standard Metropolitan Areas having 50,000 or more population (1950 Census).

(3) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Public-Safety and Industrial Radio Services where they are assigned for land mobile operations.

(4) Subpart L contains rules for assignment of frequencies in the 470–512 MHz band.

(5) Subpart M contains rules for assignment of frequencies in the 806–821 and 851–866 MHz bands.

(6) Assignment of frequencies for operational-fixed stations in the bands 952 MHz and above is governed by part 94 of this chapter.

(7) This frequency band is available to stations in this service subject to the provisions of § 90.259.

(8) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific, or medical (ISM) devices.

(9) Use of this frequency band is limited to developmental operation and is subject to the provisions of subpart P.

(10) This frequency is shared by stations in the Forest Products Radio Service in the States of Washington, Oregon, Idaho, and Montana in areas at least 40 miles removed from the center of urbanized areas of 200,000 or more population, 1970 Decennial Census. (Provided that, taxicab operations within the specified urbanized areas will not be authorized on frequencies shared with the Forest Products Radio Service until the unshared frequencies are fully utilized.) For two-frequency systems, separation between base and mobile transmit frequencies is 5 MHz; however, a mobile station may be assigned the frequency of an associated base station. (Such operation may, however, subject the single-frequency system to interference that would not occur to a two-frequency system.)

(d) *Limitation on number of frequencies assignable.* Normally only one frequency, or pair of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that: (See also § 90.253).

(1) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(2) Frequencies in the 25–50 MHz, 150–170 MHz, and 450–512 MHz bands, and the frequency bands 903–904 MHz, 904–912 MHz, 918–926 MHz, and 926–927 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

(3) The frequency band 33.00–33.01 MHz may be used for developmental operation subject to the provisions of subpart P. Any type of emission other than pulsed emission may be used if the bandwidth occupied by the emission is contained within the assigned frequency band.

§ 90.95 Automobile Emergency Radio Service.

(a) *Eligibility.* Persons regularly engaged in any of the following activities are eligible to hold authorizations in the Automobile Emergency Radio Service to operate radio stations for transmission of communications required for dispatching repair trucks, tow trucks, or other road service vehicles to disabled vehicles.

(1) The operation of a private emergency road service for disabled vehicles by associations of owners of private automobiles.

(2) The business of providing to the general public an emergency road service for disabled vehicles.

(b) *Special permissible communications.* On a secondary basis, the transmission of communications by associations of owners of private automobiles which provide emergency road service for the purpose of reporting traffic conditions is authorized.

(c) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Automobile Emergency Radio Service, together with the class of station(s) to which they are normally assigned; and the specific assignment limitations which are explained in paragraph (c) of this section:

Automobile Emergency Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
Megahertz:		
150.815	Base or mobile	1, 2, 3
150.830	do	1, 2, 3
150.845	do	1, 2, 3
150.860	do	1, 2, 3
150.875	do	1, 2, 3
150.890	do	1, 2, 3
150.905	do	3, 4
150.920	do	3, 4
150.935	do	3, 4
150.950	do	3, 4
150.965	do	3, 4
157.470	do	5, 6
157.485	do	5, 6
157.500	do	5, 6
157.515	do	5, 6
450 to 470	Fixed	7
452.525	Base or mobile	8
452.550	do	8
452.575	do	8
452.600	do	8
470 to 512	Base or mobile	9
806 to 821	Mobile	10
851 to 866	Base or mobile	10
952 and above	Operational fixed	11
1427 to 1435	Operational fixed, base, or mobile.	12
2450 to 2500	Base or mobile	13
8400 to 8500	do	14
10,550 to 10,680	do	

(d) Explanation of assignment limitations appearing in the frequency table of paragraph (c) of this section:

(1) This frequency is available only for stations (other than those aboard aircraft) which are operated by or on behalf of persons who provide to the general public an emergency road service for disabled vehicles.

(2) Only one of the frequencies 150.815, 150.830, 150.845, 150.860, 150.875, or 150.890 MHz may be assigned to the same licensee in a given area.

(3) This frequency is not available to stations in this service in Puerto Rico or the Virgin Islands.

(4) This frequency is available for assignment to base stations and to mobile stations (other than those aboard aircraft) which are operated by or on behalf of associations of owners of private automobiles.

(5) This frequency is available for assignment to stations, other than those aboard aircraft, which are operated by

or on behalf of persons who provide to the general public an emergency road service for disabled vehicles: Except that; at the discretion of the Commission this frequency may also be operated by or on behalf of associations of owners of private automobiles upon a showing that all other frequencies available for assignment to such stations are currently assigned to other stations for use in the area concerned and that the use of the requested frequency, in each case, will be less likely to result in mutual harmful interference that would the use of a frequency otherwise available to the station.

(6) Only one of the frequencies 157.470, 157.485, 157.500, or 157.515 MHz may be assigned to the same licensee in a given area.

(7) The frequencies available for use at fixed stations in this band, and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Public-Safety and Industrial Radio Services where they are assigned for land mobile operations.

(8) This frequency is available for assignment to stations which are operated by or on behalf of associations of owners of private automobiles for single-frequency operation.

(9) Subpart L contains rules for assignment of frequencies in the 470–512 MHz band.

(10) Subpart M contains rules for assignment of frequencies in the 806–821 and 851–866 MHz bands.

(11) Assignment of frequencies for operational-fixed stations in the bands 952.MHz and above is governed by part 94 of this Chapter.

(12) This frequency band is available to stations in this service subject to the provisions of § 90.259.

(13) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific, or medical (ISM) devices.

(14) Use of this frequency band is limited to developmental operation and is subject to the provisions of subpart P.

(e) *Limitation on number of frequencies assignable.* Normally only one frequency, or pair of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that: (See also § 90.253.)

(1) The frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz are available in accordance with § 90.255.

(2) Frequencies in the 25–50 MHz, 150–170 MHz, and 450–512 MHz bands, and the frequency bands 903–904 MHz, 904–912 MHz 918–926 MHz, and 926–027 MHz may be assigned for the operation of Automatic Vehicle Monitoring (AVM) systems in accordance with § 90.239, notwithstanding this limitation.

(3) The frequency band 33.00–33.01 MHz may be used for developmental operation subject to the provisions of subpart P. Any type of emission other than pulsed emission may be used if the bandwidth occupied by the emission is contained within the assigned frequency band.

Subpart F—Radiolocation Service

§ 90.101 Scope.

The Radiolocation Service accommodates the use of radio methods for determination of direction, distance, speed, or position for purposes other than navigation. Rules as to eligibility for licensing, permissible communications, frequency available, and any special requirements are set forth in the following section, except that the operation of Automatic Vehicle Monitoring (AVM) systems is governed by interim provisions set forth in § 90.239.

§ 90.103 Radiolocation service.

(a) *Eligibility.* The following persons are eligible for authorizations in the Radiolocation Service to operate stations to determine distance, direction, speed, or position by means of radiolocation devices, for purposes other than navigation:

(1) Any person engaged in a commercial, industrial, scientific, educational, or local government activity

(2) A corporation or association that will furnish radiolocation service to other persons.

(3) A corporation that will furnish a nonprofit radio communication service to its parent corporation, to another subsidiary of the same parent, or to its own subsidiary where the party to be served is regularly engaged in any of the eligibility activities set forth in this paragraph.

(b) *Frequencies available.* The following table indicates frequencies available for assignment to stations in the Radiolocation Service, together with the class of station(s) to which they are normally assigned, and the specific assignment limitations, which are explained in paragraph (c) of this section:

Radiolocation Service Frequency Table

Frequency or band	Class of station(s)	limitation
Kilohertz:		
70 to 90	Radiolocation land or mobile.	1
90 to 110	Radiolocation land.	
110 to 130	Radiolocation land or mobile.	1
1605 to 1715	do	4, 5, 6
1715 to 1750	do	5, 6
1750 to 1800	do	5, 6, 7
3230 to 3400	do	6, 8
Megahertz:		
420 to 450	do	21
2450 to 2500	do	9
2900 to 3100	do	10, 11
3100 to 3300	do	12
3300 to 3500	do	12, 13
3500 to 3700	do	12
5250 to 5350	do	12
5350 to 5460	do	10, 14
5460 to 5470	do	10, 15
5470 to 5600	do	10, 11
5600 to 5650	do	10, 16
8500 to 9000	do	12, 17
9000 to 9200	do	10, 14
9200 to 9300	do	12
9300 to 9500	do	10, 15, 18
9500 to 10,000	do	12
10,000 to 10,500	do	12, 13, 19
10,500 to 10,550	do	20
13,400 to 14,000	do	12
15,700 to 17,700	do	12
24,050 to 24,250	do	12
33,400 to 36,000	do	12

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b) of this section:

(1) This frequency band is shared with and stations operating in this frequency band in this service are on a secondary basis to stations licensed in the International Fixed Service and the Maritime Mobile Service.

(2) This frequency band is shared with and stations operating in this frequency band in this service are on a secondary basis to the LORAN Navigation System; all operations are limited to radiolocation lands stations in accordance with footnote US104, section 2.106 of this chapter.

(3) [Reserved]

(4) Non-Government radiolocation service in this band is on a secondary basis to stations in the Aeronautical Radionavigation Service operating on 1638 or 1708 kHz.

(5) Station assignments on frequencies in this band will be made subject to the conditions that the maximum output power shall not exceed 375 watts and the maximum authorized bandwidth shall not exceed 2 kHz.

(6) Because of the operation of stations having priority on the same or adjacent frequencies in this or in other countries, frequency assignments in this band may either be unavailable of may be subject to certain technical of operational limitations. Therefore, applications for frequency assignments in this band shall include information concerning the transmitter output power; the type and directional characteristics of the antenna and the minimum hours of operation (GMT).

(7) This band is shared with the Disaster Communications Service (Part 99) and operations are on a secondary basis to that service between local sunset and local sunrise, or at any

time during an actual or imminent disaster. Local sunrise and sunset times shall be derived from the 1946 American Nautical Almanac. Each frequency assignment in this band is on an exclusive basis within the daytime primary service area to which assigned. The daytime primary service area is the area where the signal intensities are adequate for radiolocation purposes during the hours from sunrise to sunset from all stations in the radiolocation system of which the station in question is a part; that is, the primary service area of the station coincides with the primary service area of the system. The normal minimum geographical separation between stations of different licensees shall be at least 580 km. (360 mi.) when the stations are operated on the same frequency or on different frequencies separated by less than 3 kHz. Where geographical separation of less than 580 km. (360 mi.) is desired under these circumstances it must be shown that the desired separation will result in protection ratio of at least 20 decibels throughout the daytime primary service area of other stations. Applications in this band are placed on public notice in accordance with § 1.962 of this chapter. Where the number of applicants requesting authority to serve an area exceeds the number of frequencies available for assignment; or where it appears that fewer applicants or licensees than the number before it should be given authority to serve a particular area; or where it appears that an applicant, either directly or indirectly, seeks to use more than 25 kHz of the available spectrum space in this band, the applications may be designated for hearing.

(8) Frequencies in this band may only be assigned to radiolocation stations which are also assigned frequencies in the 1605-1800 kHz band, provided the use of frequencies in this band is necessary for the proper functioning of the particular radiolocation system. Operations in this band are on a secondary basis to stations operating in accordance with the Commission's table of frequency allocations contained in § 2.106 of this chapter.

(9) This band is allocated to the radiolocation service on a secondary basis to other fixed or mobile services and must accept any harmful interference that may be experienced from such services or from the industrial, scientific, and medical (ISM) equipment operating in accordance with part 18 of this chapter.

(10) Speed measuring devices will not be authorized in this band.

(11) This frequency band is shared with and is on a secondary basis to the Maritime Radionavigation Service (part 83) and to the Government Radiolocation Service.

(12) This frequency band is shared with and is on a secondary basis to the Government Radiolocation Service.

(13) Operations in this band are limited to survey operations using transmitters with a peak power not to exceed 5 watts into the antenna.

(14) This frequency band is shared with and is on a secondary basis to the Aeronautical Radionavigation Service (part 87) and to the Government Radiolocation Service.

(15) The non-Government Radiolocation Service in this band is secondary to the Maritime Radionavigation Service (part 83), the Aeronautical Radionavigation Service (part 87) and the Government Radiolocation Service.

(16) This frequency band is shared with and is on a secondary basis to the Maritime Radionavigation Service (part 83) and the Government Meteorological Aids Service.

(17) Operation in this frequency band is on a secondary basis to airborne Doppler radars at 8800 MHz.

(18) Radiolocation installations will be coordinated with the Government Meteorological Aids Service, and insofar as practicable, will be adjusted to meet the needs of that service.

(19) Operations in this band are on a secondary basis to the Amateur Radio Service (part 97). Pulsed emissions are prohibited.

(20) This band is restricted to radiolocation systems using type A0 emission with a power not to exceed 40 watts into the antenna.

(21) Non-Government pulse-ranging radiolocation stations in this band are secondary to the Government Radiolocation Service and the Amateur Radio Service. Stations authorized pursuant to this footnote must cease operation on or before January 1, 1981. All power and antenna height specifications shall be made on a case-by-case basis.

(d) *Additional frequencies for automatic vehicle monitoring (AVM) systems.* The frequency bands 903-904 MHz, 904-912 MHz, 918-926 MHz, and 926-927 MHz may be assigned for AVM operations in accordance with § 90.239 except that for corporations rendering service to others under paragraph (a)(2) of this section, such operations are limited to the 904-912 MHz and 918-926 MHz bands.

(e) *Other additional frequencies available.* Radiolocation stations in this service may be authorized, on request, to use frequencies allocated exclusively to Federal Government stations, in those instances where the Commission finds, after consultation with the appropriate Government agency or agencies, that such assignment is necessary or required for coordination with Government activities.

Subpart G—Applications and Authorizations

§ 90.111 Scope.

This subpart contains the procedures and requirements for the filing of applications for authority to operate radio facilities under this part.

§ 90.113 Station authorization required.

No radio transmitter shall be operated in the services governed by this part except under and in accordance with a proper authorization granted by the Commission.

§ 90.115 Ineligiblity of foreign governments.

No station authorization in the radio services governed by this part shall be granted to or held by a foreign government or its representative.

§ 90.117 Applications for radio station authorizations.

Persons desiring a radio station authorization must first submit an appropriate application. Prescribed application forms are listed in § 90.119. They may be obtained from the Washington, D.C., office of the Commission, or from any of its engineering field offices. (See § 90.145 for information regarding special temporary authorizations.)

§ 90.119 Application forms.

The following application forms shall be used—

(a) Except as provided for in paragraph (c) of this section, Form 400 shall be used to apply:

(1) For new base, fixed, or mobile station authorizations governed by this part.

(2) for modification or for modification and renewal of an existing authorization. (See § 90.135.)

(3) For the Commission's consent to the assignment of an authorization to another person or entity. In addition, the application shall be accompanied by a letter from the assignor setting forth his desire to assign all right, title, and interest in and to such authorization, stating the call sign and location of the station, and that the assignor will submit his current station authorization for cancellation upon completion of the assignment. Form 1046 may be used in lieu of this letter.

(b) Except as provided for in paragraph (c) of this section, Form 405-A shall be used to apply for a renewal without modification of a station license.

(c) Form 425 shall be used in lieu of Form 400 and 405(a) to submit applications specifying any frequency in the band 470-512 MHz. (See also Subpart O.)

(d) A separate application shall be submitted on FCC form 703 whenever it is proposed to change, as by transfer of stock ownership, the control of a corporate licensee.

§ 90.121 Canadian registration.

Form 410 shall be filed by Canadian licensees desiring to operate in the United States under the terms of Article 2 and 3 of the Convention between the United States and Canada concerning operation of Certain Radio Equipment or Stations (which entered into force May 15, 1952). This form may be obtained from the Department of Communications, Ottawa, Canada. That department should also be consulted by U.S. licensees desiring to operate in Canada.

§ 90.123 Full disclosures.

(a) Each application shall contain full and complete disclosures with regard to the real party or parties in interest and as to all matters required to be disclosed by the application forms.

(b) Each application shall be clear and complete in itself without cross reference to information previously filed. An application for modification of an existing station must show in precise detail all particulars of the desired operation, including those not affected by the modification.

§ 90.125 Who may sign applications.

(a) Except as provided in paragraph (b) of this section, applications, amendments thereto, and related statements of fact required by the Commission shall be personally signed by the applicant, if the applicant is an individual; by one of the partners, if the applicant is a partnership; by an officer or duly authorized employee if the applicant is * * * a corporation; or by a member who is an officer, if the applicant is an unincorporated association. Applications, amendments, and related statements of fact filed on behalf of eligible government entities, such as states and territories of the United States and political subdivisions thereof, the District of Columbia, and units of local government, including incorporated municipalities, shall be signed by such duly elected or appointed officials as may be competent to do so under the laws of the applicable jurisdiction.

(b) Applications, amendments thereto, and related statements of fact required by the Commission may be signed by the applicant's attorney in fact in case of the applicant's physical disability or of his absence from the United States. The attorney shall in that event separately set forth the reason why the application is not signed by the applicant. In addition, if any matter is stated on the basis of the attorneys belief only (rather than his knowledge), he shall separately set forth his reasons for believing that such statements are true.

(c) Only the original of applications, amendments, or related statements of fact need be signed; copies must, however, conform in all other particulars to such originals.

(d) Applications, amendments, and related statements of fact need not be signed under oath. Willful false statements made therein, however, are punishable by fine and imprisonment, U.S. Code, Title 18, Section 1001, and by appropriate administrative sanctions, including revocation of station license pursuant to Section 312(a)(1) of the Communications Act of 1934, as amended.

§ 90.127 Filing of applications.

(a) All applications for station authorizations and related correspondence shall be submitted to the Commission's Office at Washington, D.C. 20554, directed to the attention of the Secretary.

(b) Unless otherwise specified, an application should be filed at least 60 days prior to the desired date of Commission action. Applications for renewal should be filed no more than 90 days nor less than 30 days prior to the end of the license term. When timely and sufficient application for renewal of the license has been made, the license shall not expire until Commission action on the application has been completed.

§ 90.129 Supplemental information to be routinely submitted with applications.

Each application shall be accompanied by the appropriate information listed below:

(a) Evidence of frequency coordination as required by § 90.175.

(b) Description of any equipment proposed to be used if it does not appear on the Commission's current Radio Equipment List, Equipment Acceptable for Licensing, and designated for use under this part.

(c) A functional system diagram and a detailed description of the manner in which the interrelated stations will operate, if the station is part of a system involving two or more stations at different fixed locations.

(d) Agreements and statements required under § 90.179 if the stations will be cooperatively shared with others under the provisions of that section.

(e) Applicants proposing to construct a radio station in the vicinity of radio astronomy observatories in West Virginia or in the vicinity of a radio receiving zone in Colorado must submit the statements prescribed by § 90.177.

(f) Statements required in connection with developmental operation, as specified in § 90.505.

(g) The narrative statement required by subpart I, part 2 of this chapter concerning environmental impact, if required. See section 1.1101-1.1319.

(h) Requests for authorization to communicate with foreign stations in accordance with § 90.19(c) or § 90.417;

(i) Showings required in connection with the use of frequencies in the band 806-866 MHz as specified in subpart M.

(l) Any statements or showings required in connection with the use of the frequency requested.

(j) Any other statements or other data specifically required under special circumstances which are set forth in the applicable subpart of this part, by the particular form on which the application is filed or upon request by the Commission.

(k) If the applicant proposes to use a multiple-licensed transmitter, he must provide the name of the owner and the names and call signs of any other licensees of that transmitter.

(l) All applications for new stations to be interconnected with the facilities of wire line common carriers shall include a complete description of the equipment, devices, and techniques to be used to accomplish interconnection to show compliance with applicable provisions of subpart O.

§ 90.131 Amendment or dismissal of applications.

(a) Any application, except for mutually exclusive applications or those against which a petition to deny has been filed, may be amended as a matter of right at any time prior to the time the application is granted or designated for hearing. Each amendment to an application shall be signed and submitted in the same manner as required for the original application. The procedures for amending applications mutually exclusive under this part, applications against which a petition to deny has been filed, and applications designated for hearing are set forth in § 1.918.

(b) Any application may, upon written request signed by the applicant or his attorney, be dismissed without prejudice as a matter of right prior to the time the application is granted or designated for hearing.

§ 90.135 Modification of license.

(a) The following changes in authorized stations require an application for modification of license:

(1) Any change in frequency.

(2) Any change in the type of emission.

(3) Any increase in output power beyond that authorized.

(4) Any increase in antenna height beyond that authorized.

(5) Any increase in the number of transmitters or control points beyond that authorized.

(6) Any change in the authorized location of the base of fixed transmitter or control point or the area of mobile operation.

(7) Any change in ownership, control, or corporate structure.

(8) Any change in class of station.

(b) The following changes do not require an application for modification of license:

(1) Change in mailing address of licensee.

(2) Change in name only of licensee, without changes in the ownership, control, or corporate structure.

(3) Any other change not listed in paragraph (a) of this section.

(4) In case of a change listed in subparagraph (1) or (2) of this paragraph, the licensee shall promptly notify the Commission of such change.

The notice, which may be in letter form, shall contain the name and address of the licensee as they appear in the Commission's records, the new name or address, the call signs and classes of all radio stations authorized to the licensee under this part and the radio service in which each station is authorized. The notice shall be sent to the Secretary, Federal Communications Commission, Washington, D.C. 20554, and to the Engineer in Charge of the Radio District in which the station is located, and a copy shall be maintained with the license of each station until a new license is issued.

§ 90.137 Applications for operation at temporary locations.

(a) An application for authority to operate a base station or a fixed station at temporary locations may be submitted in accordance with the following:

(1) When one or more individual transmitters are to be operated by a licensee as a base station or as a fixed unspecified or temporary locations for indeterminate periods, such transmitters may be considered to comprise a single station intended to be operated at temporary locations.

(2) The application must specify the general georgaphic area within which the operation will be confined. The area may be specified as a city, a county or counties, a State or States or other definable geographic area.

(b) When any unit or units of a base station or fixed station which are authorized for operation at temporary locations actually remain or are intended to remain at the same location for more than 1 year, an application for a separate authorization specifying the fixed location shall be made as soon as possible, but not later than 30 days after the expiration of the 1-year period.

§ 90.138 Applications for itinerant operation

An application for authority to conduct an itinerant operation must be restricted to use of itinerant frequencies and need not be accompanied by evidence of frequency coordination. Users should be aware, however, that no protection is provided from interference from other itinerant operations.

§ 90.139 Preliminary processing of applications.

(a) Applications received for filing are given a file number. The assignment of a file number to an application is for administrative convenience and does not indicate the acceptance of the application for filing and processing.

(b) Applications which are incomplete with respect to answers, supplementary statements, execution, or other matters of a formal character shall be deemed to be defective and may be returned to the applicant with a brief statement as to such defects. In addition, if an applicant is requested by the Commission to file any additional documents or information not included in the prescribed application form, failure to comply with such request will be deemed to render the application defective, and such application may be dismissed. Applications will also be deemed to be defective and may be returned to the applicant in the following cases:

(1) Statutory disqualification of applicant;

(2) Proposed use or purpose of station would be unlawful;

(3) Requested frequency is not allocated for assignment for the service proposed.

(c) Applications which are not in accordance with the provisions of this chapter, or other requirements of the Commission, will be considered defective and may be dismissed unless accompanied by a request in accordance with § 90.151 of this part.

§ 90.141 Resubmitted applications.

Any application which has been returned to the applicant for correction will be processed in its original position in the processing line if it is resubmitted and received by the Commission within 30 days (45 days outside continental United States) from the date on which it was returned to the applicant. Otherwise it will be treated as a new application for the purpose of processing considerations.

§ 90.143 Grants of applications.

(a) The Commission will grant an application for a station authorization without a hearing if it is in proper form, and conforms with all rule requirements, and would serve the public interest, convenience or necessity.

(b) The Commission may grant any application in part, or add privileges, terms or conditions not requested. When such action is taken without a hearing, the applicant may accept the authorization as granted, or may return it to the Commission along with a written request for a hearing. Any such request for hearing must be made within 30 days from the date of the grant, or from its effective date, if a later date is specified. Upon receipt of a request for hearing, the Commission will vacate the grant and designate the application for hearing in the usual manner.

§ 90.145 Special temporary authority.

(a) In circumstances requiring the temporary use of radio facilites, the Commission may issue special temporary authority for new or modified operations. A request for special temporary authority may be made in letter form signed in accordance with § 90.125 of this part. It should be submitted, in duplicate, at least 10 days prior to the date of the proposed operation. However, in cases of emergency involving danger to life or property, or due to damage to equipment, the request may be made by telephone or telegraph under the condition that a letter request is submitted within the following 10 days. All requests for special temporary authority shall be clear and complete within themselves and shall not rely on any pending application.

(b) Every request for special temporary authority should contain the following information:

(1) Name and address of the applicant;

(2) Need for special action, including a description of any emergency or damage of equipment;

(3) Type of operation to be conducted (such as field test, dispatching etc.);

(4) Purpose of operation;

(5) Times and dates of operation;

(6) Class of station and name of radio service;

(7) Location, including geographical coordinates if known, of transmitter and/or mobile area of operations;

(8) Number of fixed transmitters and number of mobile units;

(9) Operating frequency;

(10) Output power of the transmitter;

(11) Type of emission;

(12) Description of antenna, including height above ground and power gain;

(13) Statement of eligibility for a radio service under this part.

§ 90.147 Mailing address furnished by licensee.

Each application shall set forth and each licensee shall furnish the Commission with an address in the United States to be used by the Commission in serving documents or directing correspondence to that licensee. Unless any licensee advises the Commission to the contrary, the address contained in the licensee's most recent application will be used by the Commission for this purpose.

§ 90.149 License term.

(a) Licenses for stations authorized under this part will normally be issued for a term of 5 years from the date of original issuance, modification, or renewal, except that, in some instances, a term of from 1 to 5 years will be applied, the term varying as may be necessary to permit the orderly scheduling of renewal applications.

(b) Authorizations for stations engaged in developmental operation under subpart P of this part will be issued upon a temporary basis for a specific period of time, but in no event to extend beyond 1 year from date of original issuance, modification or renewal.

§ 90.151 Requests for waiver.

Requests for waiver shall show the nature of the waiver or exception desired, and set forth the reasons in support thereof to include a showing that unique circumstances are involved and that there is no reasonable alternative solution within existing rules. Applications may be dismissed if the accompanying petition for waiver of rules does not set forth reasons which, sufficient if true, would justify a wavier or exception.

§ 90.153 Transfer or assignment of station authorization.

A station authorization and the rights it grants shall not be transferred, assigned, or in any manner disposed of to any person, unless the Commission shall, after obtaining full information, decide that the transfer, assignment, or disposal is in the public interest, convenience or neccessity and give its consent in writting.

§ 90.155 Time in which station must be placed in operation.

All stations authorized under this part must be placed in operation within 8 months from the date of grant or the authorization shall be invalid and must be returned to the Commission for cancellation.

§ 90.157 Discontinuance of station operation.

If a station licensed under this part discontinues operation on a permanent basis, the licensee shall forward the station license to the Commission for cancellation. A copy of the request for cancellation shall be sent to the Engineer in Charge of the district in which the station is located. For the purposes of this section, any station which has not operated for 1 year or more is considered to have been permanently discontinued.

Subpart H—Policies Governing the Assignment of Frequencies

§ 90.171 Scope.

This subpart contains detailed information concerning the policies under which the Commission assigns frequencies for the use of licensees under this part, frequency coordination procedures, and procedures under which licensees may cooperatively share radio facilities.

§ 90.173 Policies governing the assignment of frequencies.

(a) The frequencies which ordinarily may be assigned to stations in the services governed by this part are listed in subparts B, C, D, E, and F of this part. Except as otherwise specifically provided in this part, frequencies assigned to land mobile stations are available on a shared basis only and will not be assigned for the exclusive use of any licensee.

(b) All applicants and licensees shall cooperate in the selection and use of frequencies in order to reduce interference and make the most effective use of the authorized facilities. Licensees of stations suffering or causing harmful interference are expected to cooperate and resolve this problem by mutually satisfactory arrangements. If the licensees are unable to do so, the Commission may impose restrictions including specifying the transmitter power, antenna height, or area or hours of operation of the stations concerned. Further the use of any frequency at a given geographical location may be denied when, in the judgment of the Commission, its use in that location is not in the public interest; the use of any frequency may be restricted as to specified geographical areas, maximum power, or such other operating conditions, contained in this part or in the station authorization.

(c) Frequencies allocated for Federal Government radio stations under Executive order of the President may be authorized for the use of stations in these services upon appropriate showing by the applicant that such assignment is necessary for inter-communication with government stations or required for coordination with activities of the Federal Government, and where the Commission finds, after consultation with the appropriate government agency or agencies, that such assignment is necessary.

(d) The radio facilities authorized under this part are intended for use in connection with and as an adjunct to the primary governmental or business activities of the licensee.

(e) Persons requesting authority to operate in the band 25–50 MHz should recognize that this band is shared with various services in other countries and that harmful interference may be caused by the propagation of signals in this band from distant stations. No protection from such harmful interference generally can be expected.

(f) In the 150–170 MHz band, no application will be granted which proposes a base station located less than 16 km (10 mi.) from an existing base station on a frequency 15 kHz removed. In the Taxicab Radio Service, the minimum separation is 12 km (7 mi.).

(g) In the States of Alaska and Hawaii, and in areas outside the continental limits of the United States and the adjacent waters, the frequencies above 150.8 MHz which are listed elsewhere in this part as available for assignment to base stations or mobile stations in the Industrial and Land Transportation Radio Service, are also available for assignment to operational fixed stations in the same service, on a secondary basis.

(h) In the Public Safety Services listed in Subpart B, base stations may be authorized to operate on a secondary basis on frequencies below 450 MHz which are available to mobile stations.

(i) In the 450–470 MHz band, the frequencies are ordinarily assigned in pairs, with the mobile station transmit frequency 5 MHz above the paired base station transmit frequency. In the 470–512 MHz band, the frequencies are ordinarily assigned in pairs with the mobile station transmit frequency 3 MHz above the paired base station transmit frequency. A mobile station may be assigned the frequency which would normally be assigned to a base station for single-frequency operation. However, this single-frequency operation may be subject to interference that would not occur to a two-frequency system.

§ 90.175 Frequency coordination requirements.

Except for applications listed in paragraph (e) of this section, each application: (1) for a new frequency assignment, or (2) for a change in existing facilities by increasing the authorized power, raising the authorized antenna height, or changing the authorized station location or the location of the antenna; or (3) for the addition of a base station within the licensee's existing area of operation, shall include

a showing of frequency coordination as set forth in either paragraph (a) or (b) of this section.

(a) For frequencies below 470 MHz:

(1) A report based on a field study indicating the degree of probable interference to all existing co-channel stations within 120 km. (75 mi.) of the proposed station, together with a statement that all such co-channel licensees have been notified of the applicant's intention to apply. In addition, for frequencies in the range 150-170 MHz, a report based on a field study indicating the degree of probable interference to existing stations located between 16 and 56 km. (10 and 35 mi.) (12 and 56 km. for taxicabs) from the proposed station, operating on a frequency 15 kHz removed, and a statement that the licensee of all such stations have been notified of the applicant's intention to apply. Or,

(2) A statement from a frequency coordinating committee recommending the frequency which, in the opinion of the committee, will result in the least amount of interference to all existing stations operating in the particular area. The Committee's recommendations may appropriately include comments on technical factors such as power, antenna height and gain, terrain, and other factors which may serve to mitigate any contemplated interference. If the frequency recommended is in the 150-170 MHz band, is 15 kHz removed from a frequency which is available to another radio service, and is assignable only after coordination, the committee's statement shall affirmatively show that coordination with a similar committee for the other service has been accomplished.

(b) For frequencies between 470 and 512 MHz:

(1) A report showing that the frequencies applied for are available for assignment in accordance with the applicable loading and separation standards, as specified in § 90.317 and § 90.303, or;

(2) A statement from a frequency coordinating committee recommending specific frequencies which are available for assignment in accordance with the loading standards and mileage separations applicable to the specific radio service involved.

(c) Any recommendation submitted in accordance with Subparagraphs (a)(2) or (b)(2) of this section is purely advisory in character and is not binding on either the applicant or the Commission. The recommendation may not contain statements implying that anyone other than the Commission has the power to grant or deny applications. Applicants are advised not to purchase radio equipment on specific frequencies until a valid authorization has been obtained.

(d) Applications for facilities near the Canadian border north of line A or east of line C in Alaska may require coordination with the Canadian government. See Section 1.955 of this chapter.

(e) The following applications need not be accompanied by evidence of frequency coordination:

(1) Applications in the Police, Highway Maintenance, or Forestry Conservation Radio Services from States requesting frequencies available only in accordance with a geographical assignment plan.

(2) Applications in the Special Emergency Radio Service, except as required by § 90.53(b)(8).

(3) Applications for a Federal Government frequency.

(4) Applications for a frequency allocated primarily for the operation of and affording no protection from industrial, scientific, and medical (ISM) devices, (27 MHz band).

(5) Applications for a frequency in the 72-76 MHz band for operational fixed stations.

(6) Applications for a frequency in the band 216-220 MHz.

(7) Applications for a frequency below 25 MHz.

(8) Applications for a frequency above 512 MHz.

(9) Applications for a frequency allocated primarily for developmental operation.

(10) Applications in the Business Radio Service for a frequency below 450 MHz where both frequencies immediately adjacent (±20 or 30 kHz) are available for assignment in that service, or where the frequency is available pursuant to § 90.75(d)(4).

(11) Applications in the Special Industrial Radio Service or the Business Radio Service specifying an itinerant operation only.

(12) Application in the Radiolocation Radio Service.

§ 90.177 Protection of certain radio receiving locations.

This section pertains to applications for new or modified authorizations in the vicinity of the National Radio Astronomy Observatory, Green Bank, Pocahontas County, W. Va., the Naval Radio Research Observatory, Sugar Grove, Pendleton County, W. Va., or the Table Mountain Radio Receiving Zone, Boulder County, Colo.

(a) Any applicant for a new permanent base or fixed station, or for a modification of an existing authorization which would change the frequency, power, antenna height, directivity, or location within the boundaries described in paragraph (b) of this section shall notify the Director, National Radio Astronomy Observatory, P.O. Box 2, Green Bank, W. Va. 24944, in writing, of the technical parameters of the proposal.

(1) The notification shall be made prior to, or simultaneously with the filing of the application with the Commission.

(2) The notification shall state the geographical coordinates of the antenna, antenna height, antenna directivity, proposed frequency, type of emission, and effective radiated power.

(3) After receipt of such applications, the Commission will allow a period of 20 days for comments or objections in response to the notifications indicated. If an objection to the proposed operation is received during the 20-day period from the National Radio Astronomy Observatory for itself or on behalf of the Naval Radio Research Observatory, the Commission will consider all aspects of the problem and take whatever action is deemed appropriate.

(4) The provisions of this paragraph do not apply to applications for mobile, temporary base, or temporary fixed stations.

(b) The area of concern for the National Radio Astronomy Observatory or the Naval Radio Research Observatory is the area bounded by 39°15′ N. on the north, 78°30′ W. on the east, 37°30′ N. on the south, and 80°30′ W. on the west.

(c) Protection for Table Mountain Radio Receiving Zone, Boulder County, Colo. Applicants for a station authorization to operate in the vicinity of Boulder County, Colo., under this part are advised to give due consideration, prior to filing applications, to the need to protect the Table Mountain Radio Receiving Zone from harmful interference. These are the Research Laboratories of the Department of Commerce, Boulder County, Colo. To prevent degradation of the present ambient radio signal level at the site, the Department of Commerce seeks to insure that field strengths at 40°07′50″ N. Latitude, 105°14′40″ W. Longitude, resulting from new assignments (other than mobile stations) or from modification or relocation of existing facilities do not exceed the following values:

Frequency range	Field strength (millivolt per meter) in authorized bandwidth of service	Power flux density [1] (decibel watt per square meter) in authorized bandwidth of service
Below 540 kHz...	10	−65.8
540 to 1600 kHs.	20	−59.8
1.6 to 470 MHz...	10	−65.8
470 to 890 MHz..	30	−56.2
Above 890 MHz..	1	−85.8

[1] Equivalent values of power flux density are calculated assuming a free space characteristic impedance of 376.7 ≅ 120π ohms.

(1) Advance consultation is recommended particularly for those applicants who have no reliable data indicating whether the field strength or power flux density figures in the above table would be exceeded by their proposed radio facilities. In such instance, the following is a suggested guide for determining whether coordination is appropriate:

(i) All stations within 2.4 km (1.5 statute miles);

(ii) Stations within 4.8 km (3 statute miles) with 50 watts or more effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Table Mountain Radio Receiving Zone;

(iii) Stations within 16 km (10 statute miles) with 1 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone;

(iv) Stations within 80 km (50 statute miles) with 25 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone.

(2) Applicants concerned are urged to communicate with the Radio Frequency Management Coordinator, Department of Commerce, Research Support Services, NOAA/R5X3, Boulder Laboratories, Boulder, Colo. 80302; in advance of filing their applications with the Commission.

(3) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Department of Commerce or proceedings to modify any authorization which, in fact, permits a signal at the reference point in excess of the field strength specified herein.

§ 90.179 Cooperative use of Public Safety and Special Emergency Land Mobile Radio Stations.

Arrangements may be made between two or more persons for the cooperative use of radio station facilities in the Public Safety and Special Emergency Radio Services provided all persons sharing in the use of a station are eligible to hold licenses to operate the particular type of station shared. Such arrangements shall be governed by the following:

(a) *Agreements relating to control.* (1) A group of persons eligible for a license in the same radio service may share the use of a base station or a base and mobile station licensed to one member of the group provided there is on file with the Commission, and maintained with the records of the station, a copy of the agreement under which such shared operation shall take place. Such agreement should provide that the licensee of the station shall be in control of the operation of the station and that all use of its facilities shall take place only under the direction and supervision of an employee of the licensee.

(2) Subscribers to such service may either obtain a separate license to cover the mobile transmitters which they use or the mobile transmitters may be included in the license of the base station from which service is rendered. In the latter case the coordinated service agreement should specifically cover use of such mobile units and indicate that the licensee would be in control of such units.

(b) *Contributions to operating costs.* Coordinated service may be rendered without cost to subscribers or contributions to capital and operating expenses may be accepted by the licensee. Such contributions must be on a cost-sharing basis and pro-rated on an equitable basis among all persons who are parties to the cooperative arrangement. Records which reflect the cost of the service and its nonprofit, cost-sharing nature shall be maintained by the base station licensee and held available for inspection by a Commission representative.

(c) *Letter to accompany application.* Each application for a mobile station proposing to receive coordinated service shall be accompanied by a letter from the licensee of the base station concerned indicating that the proposed coordinated service will be rendered.

§ 90.181 Cooperative use of industrial and radiolocation land mobile radio stations

(a) Arrangements may be made between two or more persons for the cooperative use of radio station facilities, provided that all such persons are eligible in the same radio service. When two or more persons want to share use of a base station licensed to only one of those persons, arrangements may be made in either of the following two ways:

(1) A person who is to receive service from a base station licensed to a person other than himself may obtain a license for his own mobile radio units. The application for such license shall be accompanied by an application from the licensee of the base station for modification of his license to permit rendition of the desired service. The application for modification of the base station license shall name the person to be served and may be filed either on FCC form 400 or by letter, in duplicate; or

(2) A person who is to furnish base station service to mobile radio units installed in vehicles owned and operated by persons other than himself may, if he desires, be licensee of these mobile radio units. Each person owning and operating such mobile radio units shall enter into a written agreement giving the licensee thereof the sole right of control over such units, and that agreement shall be kept as a part of the records of the base station. The operator of each vehicle shall operate the radio units subject to the orders and instructions of the base station operator. The licensee shall at all times have such access to, and control of the mobile radio equipment as will enable him to discharge his responsibilities under the Communications Act.

(b) A base station licensee who enters into a cooperative arrangement in accordance with the provisions of paragraph (a)(1)(ii) of this section shall obtain prior approval from the Commission for each person who proposes to enter into said arrangement.

(c) All cooperative arrangements entered into under the provisions of this section shall be governed by the following requirements as to costs and charges:

(1) The arrangement may be without charge. If so, the records of the base station or fixed station licensee shall so indicate.

(2) Contributions to capital and operating expenses may be accepted only on a cost-sharing, nonprofit basis, said costs to be prorated on an equitable basis among all persons who are parties to the cooperative arrangement. Records which reflect the cost of the service and its nonprofit, cost-sharing nature shall be maintained by the base station licensee and held available for inspection by Commission representatives. An audited financial statement reflecting the nonprofit cost-sharing nature of the arrangement shall be submitted annually to the Commission's Washington office no later than 3 months after the close of the licensee's fiscal year.

(d) A licensee may install mobile units licensed to him in the vehicles of persons furnishing to the licensee, under contract, and for the duration of the contract only, a facility or service directly related to the activities that constituted eligibility for the station licensee in the service in which he is authorized. The licensee shall maintain exclusive control over the operation of the units. In order to maintain such control, each person in whose vehicles the mobile units of the licensee are to be installed shall enter into a written agreement with the licensee verifying that the licensee has the sole right to control the mobile radio units, that the vehicle operators shall operate the radio units subject to the orders and instructions of the base station operator, and that the licensee shall at all times have such access to and control of the mobile equipment as will enable him to carry out his reponsibilities under his license. A copy

of the agreement with vehicle owners required hereby shall be kept with the station records.

§ 90.183 Cooperative use of land transportation land mobile radio stations.

The use of facilities licensed in the Land Transportation Radio Service for the transmission of reception or any communication which relates solely to the conduct of the activity or activities of a person other than the licensee of those facilities is defined as the rendition of a private radiocommunication service to such other person by the licensee. The installation and use of mobile units, operated under the licensee's station authorization, in the vehicles of other persons furnishing the licensee, under contract, services or facilities within the purview of the established scope of the service in which the station is authorized, in accordance with the provisions of §§ 93.357 and 93.506, shall not be considered the rendition of a private radiocommunication service when the communications involved relate solely to the furnishing of such services or facilities to the licensee. Except for emergency communications, or except for authorized communications relating to civil defense, any rendition of a private radiocommunication service by a station in the Land Transportation Radio Services shall be governed by the following:

(a) The licensee of a base station may render a private radiocommunication service to the licensee(s) of a mobile station or stations in the Land Transportation Radio Services, without specific advance approval by the Commission, upon satisfaction of the following conditions:

(1) The frequency upon which the base station is operated shall be one which would be available for assignment to base stations for use in connection with all the transportation activities involved.

(2) The rendition of the radiocommunication service shall be on a cost-sharing or no-charge basis, in accordance with the provisions of paragraph (e) of this section.

(3) The licensee of the base station shall maintain exclusive control over the operation of the base station; however, he may provide dispatch points (but not control points) for the use of the licensee of the mobile station.

(4) Except upon specific authorization by the Commission, the licensee of a base station shall not serve a greater number of mobile units of any other person than the number of mobile units of the licensee served by the same base station.

(b) The licensee of a base station may install mobile units, operated under an authorization held by him, in the vehicles of other persons who are separately engaged in transportation activities and may render a private radiocommunication service to the vehicles in which those mobile units are installed only upon specific advance approval by the Commission with respect to every person to whom such radiocommunication service is to be rendered and upon satisfaction of the following additional conditions:

(1) The frequency or frequencies upon which the base and mobile station(s) are operated shall be one(s) which would be available for assignment to base and mobile stations, respectively, for use in connection with all of the transportation activities involved.

(2) The rendition of the radiocommunication service shall be on a cost-sharing or no-charge basis, in accordance with the provisions of paragraph (e) of this section.

(3) The licensee of the base and mobile station(s) shall maintain exclusive control over the operation of the base and mobile station(s); however, he may provide dispatch points (but not control points) for the use of the persons receiving the radiocommunication service. In order to maintain such control, each person in whose vehicles the mobile units of the licensee are proposed to be installed shall enter into a written agreement verifying that the licensee has the sole right of control of the mobile radio units, that the vehicle operators shall operate the radio units subject to the orders and instructions of the base station operator, and that the licensee shall at all times have such access to and control of the mobile equipment as will enable him to carry out his responsibilities under the license. A copy of the agreement with vehicle owners required hereby shall be kept with the station records and held available for inspection by Commission representatives but need not be submitted to the Commission unless specifically requested in a particular case.

(4) Except upon specific authorization by the Commission, the licensee of a base station shall not serve a greater number of mobile units of any other person than the number of mobile units of the licensee served by the same base station.

(c) A licensee authorized under the provisions of the various subparts of this part which make eligible in certain of these services a nonprofit corporation or association organized for the purpose of furnishing a private radiocommunication service to persons engaged in the respective activities may render that communication service only upon specific advance approval by the Commission with respect to every person to whom such radiocommunication service is to be rendered and upon satisfaction of the following additional conditions:

(1) The frequency or frequencies upon which the base and mobile station(s) are operated shall be one(s) which would be available for use in connection with all of the transportation activities involved.

(2) The rendition of the radiocommunication service shall be on a cost-sharing or no-charge basis, in accordance with the provisions of paragraph (e) of this section.

(3) The licensee of the base and mobile station(s) shall maintain exclusive control over the operation of the base and mobile station(s) involved; however, he may provide dispatch points for the use of persons receiving the radiocommunication service. Control points may be provided only upon receiving the prior approval of the Commission in each case.

(d) All arrangements for the rendition of a private radiocommunication service in accordance with the provsions of the preceding paragraphs of this section shall be either on a no-charge basis or on a non-profit, cost-sharing basis pursuant to a written contract between the parties concerned. Such contract shall clearly establish that the licensee has full access to and exclusive control over the radio equipment operated under the authority of the license held by him; and that contributions to capital and operating expenses are accepted only on a cost-sharing non-profit basis, said costs to be prorated on an equitable basis among all persons who are parties to the arrangement. Records which reflect the cost of the service and its non-profit, cost-sharing nature shall be maintained by the base (or fixed) station licensee and held available for inspection by Commission representatives.

(e) In order to comply with the requirement of specific advance approval contained in paragraphs (b), and (c) of this section, a licensee proposing to render a private radio communication to any other person (other than to render base station service to the licensee of a mobile station) shall make application for authority to render that service with respect to each base station involved, naming each person who is to receive service and including a description of the kind and extent of the transportation activity in which each is engaged. When the radio communication service is to be rendered on a regular basis, the requests for such authority shall be made on FCC Form 400. However, if the service is to be rendered on an irregular or temporary basis, the request may be in the manner provided for in § 93.53. Upon approval of the request, the Commission will designate the persons to whom service may be rendered on the

station authorization or in the special temporary authority which shall be kept with the station records.

§ 90.185 Cooperative use of fixed radio stations.

(a) Licensees and persons eligible to become licensees of operational fixed stations under this part may make cooperative use of such licensed facilities under the conditions and subject to the limitations specified in this section.

(b) Such licensed facilities may be cooperatively used and shared only by: (1) Persons licensed or eligible to be licensed within the same radio service; or by (2) Government entities, units or subunits right-of-way companies, or enterprises whose rates and services are regulated by a governmental authority or body, regardless of whether such entities, units, subunits, companies, or enterprises are licensed or eligible to be licensed within the same radio service.

(c) The cooperative use of licensed facilities is authorized only on frequencies for which all participants would be separately eligible for assignment.

(d) Licensed facilities may be cooperatively used under this section only (1) without charge to any of the participants in its use, or (2) on a nonprofit, cost-sharing basis pursuant to a written contract between the parties involved which provides that the licensee shall have control of the licensed facilities and that contributions to capital and operating expenses are accepted only on a cost-sharing nonprofit basis, prorated equitably, among all participants using the facilities, or (3) on a reciprocal basis (e.g., use of one licensee's facilities in exchange for the use of another licensee's facilities) without charge for either capital or operating expense, pursuant to a written contract between the licensees involved.

(e) Each licensee sharing its facilities under this section shall maintain records showing the cost of the facilities and their operation and use, the charges made to and payments made by each of those using the facilities or contributing to their capital cost or operating expense, and such records shall be available for inspection by the Commission.

(f) Each licensee sharing its facilities under this section shall file a notification with the Commission 30 days prior to the use of its facilities by any other person that has not been specified in its license application or in a prior notification to the Commission containing the following information:

(1) Name and description of the licensee;

(2) Call sign of the station or stations;

(3) The radio service in which the station is licensed;

(4) The names of all prospective participants in the cooperative use of the station and a description of each participant sufficient to show its eligibility for participation under this section and its eligibility to use the frequencies assigned to the station; and

(5) A copy of the contract between the parties for the cooperative use of the facilities.

(g) The licensee may institute the service described in the notification filed pursuant to paragraph (f) of this section 30 days after filing unless the Commission during that period notifies the licensee that the information supplied is inadequate or that the proposed service is not authorized under these regulations, and the licensee shall then have the right to amend or to file another notification to remedy the inadequacy or defect and to institute service 30 days thereafter, or at such earlier date as the Commission may set upon finding that the inadequacy or defect has been remedied.

(h) Each licensee sharing its facilities under this section on a nonprofit, cost-sharing basis shall file an annual report with the Commission, using FCC Form 402-A, within 90 days of the close of its fiscal year containing:

(1) A financial statement of operations during the preceding fiscal year in sufficient detail to show compliance with the requirements of this section;

(2) The names of those who have shared the use of the facilities during the preceding fiscal year;

(3) A brief statement as to the use of the facilities made by each person sharing the use and an estimate of the approximate percentage of use by each participant during the preceding fiscal year; and

(4) Any change in the items previously reported to the Commission concerning such facilities or their use in the application for the license or in a notification under this section.

(i) When radio facilities are shared under the provisions of this section without charge and without any other consideration from any other participants, or on a reciprocal basis, or when the facilities are shared solely by governmental entities, in lieu of the statements required to be filed by paragraph (h) of this section, the licensee shall file with the Commission within 90 days after the close of his fiscal year a statement advising the Commission of that fact.

(j) The licensee shall inform the Commission whenever the cooperative use of any of its facilities in accordance with this section is permanently discontinued.

(k) This section authorizes the sharing of facilities of fixed stations using mobile frequencies in the 25-50, 150-173, and 450-470 MHz bands on a secondary basis only by persons all of whom are licensed or are eligible to be licensed in the same radio service.

Subpart I—General Technical Standards

§ 90.201 Scope

This subpart sets forth the general technical requirements for use of frequencies and equipment in the radio services governed by this part. Such requirements include standards for acceptability of equipment, frequency tolerance, modulation, emissions, power, and bandwidths. Special additional technical standards applicable to certain frequency bands and certain specialized uses are set forth in subparts J, K, M, and N.

§ 90.203 Type acceptance required.

(a) Except as specified in paragraph (b) of this section, each transmitter utilized for operation under this part and each transmitter marketed as set forth in section 2.803 (of part 2) must be of a type which is included in the Commission's current Radio Equipment List as type accepted or type approved for use under this part; or, be of a type which has been type accepted or type approved by the Commission for use under this part in accordance with the procedures in subparagraph (2) of this paragraph.

(1) The Commission periodically publishes a list of equipment entitled "Radio Equipment List, Equipment Acceptable for Licensing." Copies of this list are available for public reference at the Commission's offices in Washington, D.C., and at each of its field offices. This list includes type accepted and type approved equipment and, also, until such time as it may be removed by Commission action, other equipment which appeared in this list on May 16, 1955.

(2) Any manufacturer of radio transmitting equipment (including signal boosters) to be used in these services may request type acceptance or type approval for such equipment following the procedures set forth in subpart J of part 2 of this chapter. Type acceptance or type approval for an individual transmitter or signal booster also may be requested by an applicant for a station authorization by following the procedure set forth in part 2 of this chapter. Such equipment if approved or accepted will not normally be included in the Commission's "Radio Equipment List" but will be individually enumerated on the station authorization.

(b) Type acceptance is not required for the following:

(1) Transmitters used in developmental operations in accordance with subpart P.

(2) Transmitters used for police zone and interzone stations authorized as of January 1, 1965.

(3) Transmitting equipment used in the band 1427-1435 MHz.

(4) Transmitters used in radiolocation stations in accordance with subpart F authorized prior to January 1, 1974, for public safety and land transportation applications (old parts 89 and 93).

(5) Transmitters used in radiolocation stations in accordance with subpart F authorized for industrial applications (old part 91).

(c) Radiolocation transmitters for use in public safety and land transportation applications marketed prior to January 1, 1974, must meet the applicable technical standards in this part, pursuant to section 2.805 of this chapter.

(d) Radiolocation transmitters for use in public safety and land transportation applications marketed after January 1, 1974, must comply with the requirements of paragraph (a) of this section.

§ 90.205 Power.

(a) Applications for authorizations must specify no more power than the actual power necessary for satisfactory operation. In cases of harmful interference, the Commission may order a change in power or antenna height or both.

(b) Except where otherwise specifically provided, the maximum power that will be authorized is as follows:

Frequency range (megahertz)	Maximum output power	Maximum effective radiated power (watts)
1.3 to 3	[1]1500	
3 to 25	[1][2]750	
25 to 100	300	
100 to 216	[3]350	
216 to 220	([3][4])	([4])
220 to 470	[3][5]350	
470 to 512		1000
806 to 821	([6])	([6])
851 to 866	([7])	([6])
1427 to 1435	([3])	
2450 to 2500	5	
2500 to 10,550	([6])	([6])
10,550 to 10,680	3	
Above 10,680	([6])	([6])

[1]For single sideband operations (A3J emission) below 10 MHz, the authorized power shall be stated in terms of peak envelope power, which is the average power supplied to the antenna transmission line by a transmitter during 1 radio frequency cycle at the highest crest of the modulation envelope taken under conditions of normal operation. The maximum peak envelope power permitted is 2 kW.

[2]In the frequency band 3 to 6 MHz, stations in the industrial services and the radiolocation radio service may be authorized up to 1500 W.

[3]Except as noted in footnote 5 the maximum output power in the Motor Carrier, Taxicab, Railroad, and Automobile Emergency Radio Services is 75 W.

[4]To be specified in the authorization.

[5]In the frequency band 450 to 470 MHz, stations in the land transportation radio services are limited to 75 W, however, they may be authorized up to 350 W for developmental operations in accordance with subpt. P.

[6]Specified in subpt. M.

[7]The output power of a transmitter on any authorized frequency in this band shall not exceed 200 W.

(c) The output power shall not exceed by more than 20 percent either the output power shown in the Radio Equipment List (available in accordance with section 90.203(a)(1) for transmitters included in this list or when not so listed, the manufacturer's rated output power for the particular transmitter specifically listed on the authorization.

§ 90.207 Types of emissions.

Normally operations authorized in the services governed by this part are intended to provide voice communications between stations. Accordingly, except as otherwise provided for in the following paragraphs, stations in these services will be authorized to use only A3 or F3 emission.

(a) Authorizations to use A3 or F3 emission also include the use of emissions for tone signals or signaling devices whose sole functions are to establish and to maintain communications, to provide automatic station identification, and for operations in the Public Safety and Special Emergency Radio Services, to activate emergency warning devices used solely for the purpose of advising the general public or emergency personnel of an impending emergency situation.

(b) The use of F3 emission in these services will be authorized only on frequencies above 25 MHz.

(c) Except for Travelers' Information Stations in the Local Government Radio Service authorized in accordance with § 90.242, only A3J emission will be authorized for telephony systems on frequencies below 25 MHz.

(d) For tone paging operations only A1, A2, F1, or F2 emission will be authorized.

(e) For radioteleprinter operations that may be authorized in accordance with § 90.237, only F2 or F9 emission will be authorized.

(f) For radiofacsimile operations that may be authorized in accordance with § 90.237, only F4 emission will be authorized.

(g) For AVM systems that may be authorized in accordance with § 90.239, only F1, F2, F3, F9, or P9 emission will be authorized.

(h) For telemetry operations only A1, A2, F1, F2, or F9 emission will be authorized.

(i) For call box operations that may be authorized in accordance with § 90.241, only A1, A2, F1, F2, or F3 emissions will be authorized.

(j) For radiolocation operations as may be authorized in accordance with subpart F, unless otherwise provided for any type of emission may be authorized upon a satisfactory showing of need.

(k) For stations in the Fire and Police Radio Services utilizing digital voice modulation in either the scrambled or unscrambled mode F3Y emission will be authorized. Authorization to use F3Y is construed to include the use of F9Y emission subject to the provisions of paragraphs (a), (b), and (d) of § 90.233.

§ 90.209 Bandwidth limitations.

(a) Each authorization issued to a station licensed under this part will specify the maximum authorized bandwidth to be occupied by the emission. The bandwidth in kilohertz will appear as a prefix to the emission classification. The specified band will contain those frequencies upon which 99 percent of the radiated power appears, extended to include any discrete frequency upon which the power is at least 0.25 percent of the total radiated power.

(b) The maximum authorized bandwidth of emission corresponding to the type of emission specified in § 90.207 of this part and the maximum authorized frequency deviation in the case of frequency or phase modulated emission shall be as follows:

(1) For all type A1 emission, the maximum authorized bandwidth shall be 0.25 kHz.

(2) Except as noted in subparagraph 3, the maximum authorized bandwidth for type A3 emission shall be 8 kHz.

(3) For type A3J operations below 10 MHz, the bandwidth occupied by the emission shall not exceed 3500 Hz. The frequency coinciding with the center of the authorized frequency band of emission shall be the assigned frequency. Both the authorized carrier frequency and assigned frequency shall be specified in the authorization. The authorized carrier frequency shall be 1400 Hz lower in frequency than the assigned frequency. Only upper sideband emission shall be used. In the case of regularly available double sideband radiotelephone channels, and assigned frequency for A3J emission is available either 1.6 kHz below or 1.4 kHz above the double sideband radiotelephone assigned frequency.

(4) For all F3 emission, on frequencies below 947 MHz, the maximum authorized bandwidth shall be 20 kHz and the maximum authorized frequency deviation shall be 5 kHz. However, stations authorized for operation on or before December 1, 1961, in the frequency band 73.0-74.6 MHz may continue to operate with a bandwidth of 40 kHz and a deviation of 15 kHz. For stations operating on frequencies above 947 MHz, except as provided in subparagraph (5), of this section the maximum authorized bandwidth and

frequency deviation will be specified in the station authorization.

(5) The maximum authorized bandwidth shall be 25 MHz in the frequency band 10,550–10,680 MHz and 50 MHz in the frequency bands above 16,000 MHz.

(6) For all other types of emissions the maximum authorized bandwidth shall not be more than that normally authorized for voice operations.

(c) Except as noted in paragraph (d) and (f), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: at least 25 decibels;

(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: at least 35 decibels;

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: at least 43 plus 10 Log_{10} (mean output power in watts) decibels or 80 decibels, whichever is the lesser attenuation.

(d) For single sideband operations (A3J) below 10 MHz, the carrier frequency power shall be at least 40 dB below the peak envelope power and the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

(1) On any frequency removed from the assigned frequency by more than 1.75 kHz up to and including 5.25 kHz: At least 25 dB;

(2) On any frequency removed from the assigned frequency by more than 5.25 kHz and up to and including 8.75 kHz: At least 35 dB;

(3) On any frequency removed from the assigned frequency by more than 8.75 kHz: At least 43 plus 10 $\log_{10}$ (mean output power in watts) dB.

(e) When radiation in excess of that specified in paragraphs (c) and (d) of this section results in harmful interference, the Commission may require appropriate technical changes in equipment to alleviate the interference.

(f) The power of any sideband emission of a digital transmitter authorized pursuant to paragraph (i) of § 90.211 shall be attenuated below the unmodulated output power (P) in accordance with the following schedule:

(1) On any frequency removed from the assigned frequency by a displacement frequency (f_d) between 5 and 10 kHz, the attenuation shall be:

$$83\ \text{Log}_{10}(f_d/5)\text{dB}.$$

(2) On any frequency removed from the assigned frequency by a displacement frequency (f_d) greater than 10 kHz, the attenuation shall be:

$$116\ \text{Log}_{10}(f_d/6.1)\text{dB or } 50+10\ \text{Log}_{10}(P)\text{dB},$$

whichever is less.

§ 90.211 Modulation requirements.

(a) For those transmitters subject to the provisions of paragraph (d) of this section, the maximum audio frequency required for satisfactory radiotelephony intelligibility in the radio services governed by this part is considered to be 3000 Hertz (2800 Hz for single sideband operations below 25 MHz). For all others, the overall frequency response of the audio and modulating circuits may correspond approximately with that required for satisfactory intelligibility.

(b) When amplitude modulation is used for radiotelephony, the modulation percentage shall be sufficient to provide efficient communication and normally should be maintained above 70 percent on peaks, but shall not exceed 100 percent on negative peaks.

(c) Each transmitter shall be equipped with a device which automatically prevents modulation in excess of that specified in this subpart which may be caused by greater than normal audio level. This requirement shall not be applicable to transmitters authorized to operate as mobile stations with a maximum output power of 2 watts or less.

(d) Except as provided for in paragraph (g) of this section, each transmitter in the frequency ranges 25 to 50, 72.0 to 73.0, 75.4 to 76, 150.8 to 174, 450 to 512, 806 to 821, and 851 to 866 MHz which is equipped with a modulation limiter in accordance with paragraph (c) of this section shall be equipped with an audio low-pass filter. Such filter shall be installed between the modulation limiter and the modulated stage and shall meet the specifications contained in paragraph (e) or (f) of this section. The provisions of this paragraph do not apply to transmitters of licensed radio-communications systems operating wholly within the limits of one or more of the territories or possessions of the United States or Alaska, or Hawaii, except those systems operating in the frequency ranges 806 to 821 MHz and 851 to 866 MHz.

(e) Except as provided in paragraph (f) of this section, at audio frequencies between 3 kHz and 15 kHz, the low-pass filter required by the provisions of paragraph (d) of this section shall have an attenuation greater than the attenuation at 1 kHz by at least

$$40\ \log_{10}(f/3)\text{ decibels},$$

where "f" is the audio frequency in kHz. At audio frequencies above 15 kHz, the attenuation shall be at least 28 decibels greater than the attenuation at 1 kHz.

(f) For stations authorized in the 450–470 MHz band on or after November 1, 1967, and for all stations authorized in the 470–512, 806–821, and 851–866 MHz bands, and for Travelers' Information Stations on 530 and 1610 kHz, at audio frequencies between 3 kHz and 20 kHz, the low-pass filter required by the provisions of paragraph (d) of this section shall have an attenuation greater than the attenuation at 1 kHz by at least:

$$60\ \log_{10}(f/3)\text{ decibels},$$

where "f" is the audio frequency in kHz. At audio frequencies above 20 kHz, the attenuation shall be at least 50 decibels greater than the attenuation at 1 kHz.

(g) Except as provided in paragraph (h) of this section, each transmitter in the frequency ranges 25 to 50, 150.8 to 162, 450 to 512, 806 to 821, and 851 to 866 MHz shall be equipped with an audio low pass filter. Such filter shall be installed between the modulation limiter and the modulated stage and shall meet the specifications contained in paragraphs (e) and (f) of this section. The provisions of this paragraph do not apply to transmitters of licensed radiocommunications systems operated wholly within one or more of the territories or possessions of the United States or Alaska, or Hawaii, except those systems operating in the frequency ranges 806 to 821 MHz, and 851 to 866 MHz.

(h) Each transmitter in the frequency ranges 25 to 50, 150.8 to 162, 450 to 512, 806 to 821, and 851 to 866 MHz will be exempt from the audio low pass filter requirements of this section when type accepted for use with specific digital equipment. The application for type acceptance shall contain such information as may be necessary to demonstrate that the transmitter complies with the emission limitations specified in paragraph (g) of section 90.209, when used with the specific digital equipment. When the transmitter is to be type accepted for both digital and analog use, the analog input shall be equipped with an audio low pass filter as provided in paragraph (d) of this section.

§ 90.212 Provisions relating to the use of scrambling devices and digital voice modulation.

(a) Analog scrambling techniques may be employed at any station authorized the use of A3 or F3 emission, subject to the provision of paragraph (d) of this section.

(b) The use of digital scrambling techniques or digital voice modulation requires the specific authorization of F3Y emission, and this emission will be authorized only to stations in the Police and Fire Radio Services, subject to the provisions of paragraph (d) of this section.

(c) The transmission of any non-voice information or data under the authorization of F3Y emission is prohibited. However, stations authorized the use of F3Y emission may also be authorized F9Y emission for non-voice communication purposes, pursuant to paragraph (k) of § 90.207.

(d) Station identification shall be transmitted in the unscrambled analog mode (clear voice) or Morse code in accordance with the provisions of § 90.425.

§ 90.213 Frequency tolerance.

(a) A licensee in the services governed by this part shall maintain the carrier frequency of each authorized transmitter within the following percentage of the assigned frequency:

Frequency Tolerance

Frequency range (MHz)	Fixed and base stations		Mobile stations	
	Over 200W output power	200W or less output power	Over 2W output power	2W or less output power
Below 25	[1] [2] .005	.01	.01	.02
25 to 50	.002	.002	.002	.005
50 to 450	[4] [5] .0005	[4] [5] .0005	[4] .0005	[6] .005
450 to 470	[7] [8] [9] .00025	[7] [9] .00025	.0005	.0005
470 to 512	[7] .00025	[7] .00025	.0005	.0005
806 to 821	[10] .00015	[10] .0015	.00025	.00025
851 to 866	.00015	.00015	.0025	.00025
1427 to 1435	[11] .03	[11] .03	.03	.03
Above 2450	([12] [13])	([12] [13])	([12] [13])	([12] [13])

[1] Fixed and base stations in the Public Safety and Special Emergency Radio Services may operate with a frequency tolerance of 0.01 pct.

[2] Radiolocation stations operating in the 70–90 kHz or 110–130 kHz bands may operate with a frequency tolerance of 0.01 pct.

[3] For single sideband operations below 10 MHz, the carrier frequency must be maintained within 50 Hz of the authorized carrier frequency.

[4] Stations authorized for operation on or before Dec. 1, 1961, in the frequency band 73-74.6 MHz may operate with a frequency tolerance of 0.005 pct.

[5] Radio call box stations in the Local Government Radio Service in the 72-76 MHz band may operate with a frequency tolerance of 0.005 pct.

[6] Stations operating in the 154.45 to 154.49 MHz or the 173.2 to 173.4 MHz bands must operate with a frequency tolerance of 0.0005 pct.

[7] Operational fixed stations controlling mobile relays, through use of the associated mobile frequency, may operate with a frequency tolerance of 0.0005 pct.

[8] Base stations operating on the frequencies 452.925, 452.950, 457.925, and 457.950 MHz used for remote control purposes in railroad yard and terminal areas, may operate with a frequency tolerance of 0.0005 pct.

[9] Central control and radio call box stations may operate with a frequency tolerance of 0.001 pct.

[10] Control stations may operate with a frequency tolerance of 0.00025 pct.

[11] Fixed stations with an putput power above 120W and necessary bandwidth less than 3 kHz must operate with a frequency tolerance of 0.01 pct. Fixed stations with an output power less than 120W and using time-division multiplex, may operate with a frequency tolerance of 0.05 pct.

[12] Radiolocation equipment using pulse modulation shall meet the following frequency tolerance: the frequency at which maximum emission occurs shall be within the authorized frequency band and shall not be closer than 1.5/T MHz to the upper and lower limits of the authorized frequency band, where T is the pulse duration in microseconds.

[13] To be specified in the station authorization.

(b) For the purpose of determining the frequency tolerance applicable to a particular transmitter in accordance with the foregoing provisions of this section, the power of a transmitter shall be the maximum rated output power as specified by the manufacturer.

§ 90.215 Transmitter measurements.

(a) The licensee of each station shall employ a suitable procedure to determine that the carrier frequency of each transmitter authorized to operate with an output power in excess of two watts is maintained within the tolerence prescribed in § 91.213. This determination shall be made, and the results entered in the station records in accordance with the following:

(1) When the transmitter is initially installed;

(2) When any change is made in the transmitter which may affect the carrier frequency or its stability.

(b) The licensee of each station shall employ a suitable procedure to determine that each transmitter authorized to operate with an output power in excess of two watts does not exceed the maximum figure specified on the current station authorization. On authorizations stating only the input power to the final radiofrequency stage, the maximum permissible output power is 75 percent for frequencies below 25 MHz and 60 percent of the input power for frequencies above 25 MHz. If a non-DC final radiofrequency stage is utilized, then the output power shall not exceed 75 percent of the input power. This determination shall be made, and the results thereof entered into the station records, in accordance with the following:

(1) When the transmitter is initially installed;

(2) When any change is made in the transmitter which may increase the transmitter power input.

(c) The licensee of each station shall employ a suitable procedure to determine that the modulation of each transmitter, which is authorized to operate with an output power in excess of two watts, does not exceed the limits specified in this part. This determination shall be made and the following results entered in the station records, in accordance with the following:

(1) When the transmitter is initially installed;

(2) When any change is made in the transmitter which may affect the modulation characteristics.

(d) The determinations required by paragraphs (a), (b), and (c) of this section may, at the opinion of the licensee, be made by a qualified engineering measurement service, in which case the required record entries shall show the name and address of the engineering measurement service as well as the name of the person making the measurements.

(e) In the case of mobile transmitters, the determinations required by paragraphs (a) and (c) of this section may be made at a test or service bench: Provided, That the measurements are made under load conditions equivalent to actual operating conditions; and provided further, that after installation in the mobile unit the transmitter is given a routine check to determine that it is capable of being received satisfactorily by an appropriate receiver.

§ 90.217 Exemption from technical standards.

Transmitters used at stations licensed in the Business Radio Service which have an output power not exceeding 120 milliwatts are exempt from the technical requirements set out in this subpart: Provided, however, that the sum of the bandwidth occupied by the emitted signal plus the bandwidth required for frequency tolerance shall be so adjusted that any emission appearing on a frequency 40 kHz or more removed from the assigned frequency is attenuated at least 30 dB below the unmodulated carrier. Such transmitters may operate in the continuous carrier transmit mode.

Subpart J—Non-Voice and Other Specialized Operations

§ 90.231 Scope.

This subpart sets forth requirements and standards for licensing and operation of non-voice and other specialized radio uses (other than radiolocation). Such uses include secondary signaling, telemetry, radioteleprinter, radiofacsimile, automatic vehicle monitoring (AVM), radio call box, relay, vehicular repeater, and control station operations.

§ 90.233 Secondary base/mobile nonvoice signaling operations.

On a secondary basis to voice operations, the use of A2, A9, F2, F9 (audio-frequency toneshift or tone phase shift) or F9 emission may be authorized to base/mobile operations in accordance with the following limitations and requirements:

(a) Authorizations are limited to mobile service frequencies below 950 MHz.

(b) Maximum duration of a transmission for each distinct non-voice message, including automatic repeats of the message, may not exceed 2 seconds. There must be a break in the carrier between each such transmission.

(c) Required station identification for non-voice operations must be made by F3 or A3 emission and may be given by the base station for a base/mobile system.

(d) Secondary non-voice operations under this section may not be authorized for tone paging, telemetry, radiolocation, AVM, radioteleprinter, radiofacsimile, or radio call box operations. These operations are authorized under other sections of this part.

§ 90.235 Secondary fixed tone signaling and alarm operations.

In the Local Government, Police, Fire, Highway Maintenance, Forestry Conservation, Power, and Petroleum Radio Services, fixed operations may be authorized for tone or impulse signaling on mobile service frequencies above 25 MHz within the area normally covered by the licensee's mobile system on a secondary basis to the primary mobile service operation of any other licensee for the purposes described in paragraphs (a) and (b):

(a) In the Public Safety Radio Services, the only purposes for which such secondary signaling may be used are:

(1) Indication of equipment malfunction.

(2) Actuation of a device to indicate the presence of an intruder, fire, or other hazardous condition on the property under the protection of the licensee.

(3) Indication of an abnormal condition in facilities under the jurisdiction of the licensee that, if not promptly reported, would result in danger to human life.

(4) Transmissions that may be necessary to verify status of equipment; adjust operating conditions; correct any abnormal condition; or to activate devices that alert the public to a condition affecting the imminent safety of life or property.

(5) Confirmation of status, when an operation or correction has been accomplished, or when an alerting device has been activated.

(b) In the Power and Petroleum Radio Services, the only purposes for which such secondary signaling may be used are:

(1) Indication of failure of equipment or service used in the facilities of the licensee.

(2) Indication of an abnormal condition in the production, transmission, collection, distribution, refining, or transporting facilities of the licensee, which if not promptly corrected would result in failure of the equipment affected.

(3) Transmission from the point where alarms or other operational data are received as may be necessary to verify status of equipment or processes; verify or adjust operating conditions; restore lost service; place standby equipment in operation; or to correct any abnormal conditions which would otherwise result in the immediate or continued failure in the licensee's operations.

(4) Confirmation of status or operating conditions, or that an operation or correction intended to be accomplished in subparagraph (3) of this paragraph has occurred.

(c) All such secondary signaling shall be subject to the following technical requirements:

(1) The bandwidth shall not exceed that authorized to the licensee for the primary operations on the frequency concerned.

(2) The output power shall not exceed 30 watts (at the remote site).

(3) A1, A2, A9, F1, F2, and F9 emission may be authorized. In the Police Radio Service A3 or F3 emission may also be authorized.

(4) For systems authorized in the Public Safety Services after June 20, 1975, to be used for the purposes outlined in paragraph (a) of this section, the maximum duration of any one nonvoice signal may not exceed 2 seconds and shall not be transmitted more than three times. The maximum duration of any one voice alarm shall not exceed 6 seconds and shall not be transmitted more than three times. For systems authorized prior to this date, any one alarm or warning may be transmitted a maximum of five times and each transmission shall not exceed 6 seconds; such system to include existing facilities and additional facilities which may be authorized as a clear and direct expansion of the existing system.

(5) For systems authorized in the Petrolem Radio Service after June 1, 1976, each transmission for any one alarm, warning corrective action, or requirement, positive confirmation, checkback, or other purpose set forth in paragraph (b) of this section, shall be limited to a maximum duration of 2 seconds and shall not be repeated more than three times. For systems authorized prior to June 1, 1976, any one alarm or warning may be transmitted a maximum of five times and each transmission may not exceed 6 seconds; such systems to include existing facilities and additional facilities which may be authorized as a clear and direct expansion of the existing system.

(6) For systems authorized in the Power Radio Service after June 1, 1976, each transmission for any one alarm, warning corrective action, or requirement, positive confirmation, checkback, or other purpose set forth in paragraph (b) of this section, shall be limited to a maximum duration of 2 seconds and shall not be repeated more than five times. For systems authorized prior to June 1, 1976, any one alarm or warning may be transmitted a maximum of five times and each transmission may not exceed 6 seconds; such systems to include existing facilities and additional facilities which may be authorized as a clear and direct expansion of the existing system.

(7) Systems employing automatic interrgation shall be limited to nonvoice techniques and shall not be activated for this purpose more than 10 seconds out of any 60-second period. This 10 second timeframe includes both transmit and response times.

(8) Frequency loading resulting from the use of secondary signaling will not be considered in whole or in part as a justification for authorizing additional frequencies in the licensee's mobile system.

(9) A mobile service frequency may not be used exclusively for secondary signaling.

(10) Automatic means shall be provided to deactivate the transmitter in the event the carrier remains on for a period in excess of 3 minutes.

(11) Operational fixed stations authorized pursuant to the provisions of this paragraph are exempt from the requirements of §§ 90.137(b), 90.425 and 90.429.

(12) Base, mobile relay, or mobile stations may transmit secondary tone or impulse signals to receives at fixed locations subject to the conditions, and for the purposes set forth in this section.

§ 90.237 Interim provisions for operations of radioteleprinter and radiofacsimile devices.

These provisions authorize and govern the use of radioteleprinter and radiofacsimile devices for base station use (other than on mobile-only or paging-only frequencies) in the radio services (except in the Radiolocation and Special Emergency Radio Services) in this part. In the Business Radio Service the authority extends only to those frequencies subject to the coordination requirements set forth in § 90.175.

(a) Information must be submitted with an application to establish that the minimum separation between a proposed radioteleprinter or radiofacsimile base station and the nearest co-channel base station of another licensee operating a voice system is 120 km. (75 mi.) for a single frequency mode of operation, or 56 km. (35 mi.) for a two-frequency mode of operation. Where this minimum mileage separation cannot be achieved, either agreement to the use of F2, F4, or F9 emission must be received from all existing co-channel licensees using voice emission within the applicable mileage limits, or if agreement was not received, the licensee of the radioteleprinter or radiofacsimile system is responsible for eliminating any interference with pre-existing voice operations. New licensees of voice operations. New licensees of voice operations will be expected to share equally any frequency occupied by established radioteleprinter or radiofacsimile operations.

(b) The application must list the manufacturer and model number of the radioteleprinter or radiofacsimile system to be employed, or contain a detailed technical description of the system.

(c) Transmitters type-accepted under this part for use of F3 emission may also be used for F2, F4, or F9 emission for radioteleprinter or radiofacsimile, provided the keying signal is passed through the low pass audio frequency filter required for F3 emission. The transmitter must be so adjusted and operated that the instantaneous frequency deviation does not exceed the maximum value allowed for F3.

(d) Frequencies will not be assigned exclusively for F2, F4, or F9 emission for radioteleprinter or radiofacsimile (except where specifically provided for in the frequency limitations).

(e) The requirements in this part applicable to the use of F3 emission are also applicable to the use of F2, F4, or F9 emission for radioteleprinter and radiofacsimile transmissions.

(f) The station identification required by § 90.425 must be given by voice or Morse code.

§ 90.239 Interim provisions for operation of automatic vehicle monitoring (AVM) systems.

(a) These provisions authorize, to persons eligible in the radio services of this part, the licensing of automatic vehicle monitoring (AVM) systems that utilize nonvoice radio techniques to determine the location of vehicles. Authority is also provided for the transmission of voice and/or nonvoice messages relating to vehicles being located.

(b) The use of F1, F2, F3, F9, or P9 emissions is authorized for operation of transmitters in AVM systems subject to paragraph (e)(2)(iii) of this section.

(c) Frequencies for AVM operations are assignable as follows: (1) Licensees for pulse-ranging AVM systems, requiring 8 MHz bandwidth may be authorized in the 904-912 MHz or 918-926 MHz band provided that:

(i) A licensee will not be assigned a second frequency band in the same geographic area until showing is made that the frequency band already assigned is being used to provide location data for not less than 5,000 vehicles.

(ii) Operations will not cause interference to government stations which operate in these bands and can tolerate interference from industrial, scientific, and medical (ISM) devices and from government stations which operate in these bands.

(2) AVM systems requiring bandwidths not exceeding 1 MHz may be authorized in the 903-904 or 926-927 MHz bands on a developmental basis in accordance with subpart P.

(3) Applicants requiring not more than 25 kHz bandwidth per frequency in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands may either utilize base-mobile frequencies presently assigned the applicant, or be assigned base-mobile frequencies available in the service in which eligibility has been established, provided that:

(i) For transmission between vehicles and base stations, each frequency in a single-frequency mode of operation will provide location data for approximately 200 vehicles, or both frequencies in a two-frequency mode of operation will provide location data for approximately 400 vehicles, except that for frequencies in the 450-512 MHz band that are assigned in pairs in accordance with the allocation plan for the band, the requirement is that location data be provided for approximately 200 vehicles for each frequency pair; and a showing is made that 50 percent of the vehicles will be in operation within the system by the end of the second year of the initial license term, and 70 percent will be in operation within the system by the end of the initial license term; except that if these vehicle loading standards will not be met, frequencies will be assigned only on a secondary noninterference basis to any authorized radiotelephony operation.

(ii) The minimum separation between a proposed AVM station and the nearest co-channel base station of another licensee operating a voice system is 75 miles (120 km) for a single frequency mode of operation or 35 miles (56 km) for a two-frequency mode of operation. Where the minimum mileage separation cannot be achieved, agreement to the use of F1, F2, F9, or P9 emission must be received from all existing co-channel licensees using voice emissions within the applicable mileage limits. If there is interference with voice operations and required agreement was not received, or operation was authorized on a secondary noninterference basis, the licensee of the AVM system is responsible for eliminating the interference.

(iii) Frequencies additional to any assigned under subparagraph (i) of this paragraph will not be assigned to the same licensee in the same geographic area until each of such licensee's frequencies for AVM operation is shown to accommodate not less than 90 percent of the frequency loading requirements specified in subparagraph (i) of this paragraph.

(d) Each application to license an AVM system shall include the following supplemental information:

(1) A detailed description of the manner in which the system will operate, including a map or diagram.

(2) For wide band frequency operation, the necessary or occupied bandwidth of emission whichever is greater.

(3) The data transmission characteristics as follows:

(i) The vehicle location update rates;

(ii) Specific transmitter modulation techniques used;

(iii) For codes and timing scheme: A table of bit sequences and their alphanumeric or indicator equivalents, and a statement of bit rise time, bit transmission rates, bit duration, and interval between bits;

(iv) A statement of amplitude-versus-time of the interrogation and reply formats, and an example of a typical message transmission and any synchronizing pulses utilized.

(4) A plan to show implementation schedule during the initial license term.

(e) Technical standards.

(1) AVM stations authorized for operation below 512 MHz must comply with the technical standards applicable to the frequency band prescribed in this chapter, including the requirement for type acceptance of equipment used.

(2) Pending final development of technical standards, utilization of non-type accepted transmitters by stations authorized for operation above 512 MHz will be permissible provided that:

(i) The output power of transmitters used in pulse ranging systems shall not exceed 1 kW PEP;

(ii) The output power of transmitters used in nonpulse ranging systems shall not exceed 300 watts.

(iii) Emissions will be authorized on a case-by-case basis dependent on the requirements of the specific technique utilized.

(3) Transmitters to be operated at signposts, or from vehicles to signposts for location signaling purposes may be employed with output power not to exceed 250 milliwatts, and their operation is secondary to regular co-channel operations on the frequency being utilized.

(4) Pending development of further specific technical standards for AVM systems, the Commission, on a case-by-case basis, may impose additional appropriate technical requirements to assure efficient and effective frequency utilization.

(f) AVM stations are exempted from the identification requirements of § 90.425; however, the Commission may impose automatic station identification requirements when determined to be necessary for monitoring and enforcement purposes.

§ 90.241 Radio call box operations.

(a) The frequencies in the 72-76 MHz band listed in § 90.17(b) may be assigned in the Local Government Radio Service for operation of radio call boxes to be used by the public to request fire, police, ambulance, road service, and other emergency assistance, subject to the following conditions and limitations:

(1) Maximum transmitter power will be either 2.5 watts plate input to the final stage or 1 watt output.

(2) Antenna gain shall not exceed zero dBd (referred to a half-wave dipole) in any horizontal direction.

(3) Only vertical polarization of antennas shall be permitted.

(4) The antenna and its supporting structure must not exceed 20 feet (6.1 meters) in height above the ground.

(5) Only A1, A2, F1, or F2 emission shall be authorized.

(6) The transmitter frequency tolerance shall be 0.005 percent.

(7) Except for test purposes, each transmission must be limited to a maximum of two seconds and shall not be automatically repeated more than two times at spaced intervals within the following 30 seconds. Thereafter, the authorized cycle may not be reactivated for one minute.

(8) All transmitters installed after December 10, 1970, shall be furnished with an automatic means to deactivate the transmitter in the event the carrier remains on for a period in excess of three minutes. The automatic cutoff system must be designed so the transmitter can be only manually reactivated.

(9) Frequency selection must be made with regard to reception of television stations on channels 4 (66-72 MHz) and 5 (76-82 MHz) and should maintain the greatest possible frequency separation from either or both of these channels, if they are assigned in the area.

(b) Frequencies in the band 154.4525 to 154.460 MHz may be assigned to fixed stations in the Local Government Radio Service for the purpose of providing emergency call box service. The maximum power output of the transmitter is 20 watts. A1, A2, F1, or F2 emission may be authorized. The authorized bandwidth may not exceed 6 kHz. For FM transmitters, the sum of the highest modulating frequency in hertz and the amount of frequency deviation or swing in hertz may not exceed 2800 Hz and the maximum frequency deviation may not exceed 2.5 kHz. For AM transmitters the highest modulating frequency may not exceed 2000 Hz. The carrier frequency must be maintained with 0.0005 percent of the center of the frequency band.

(c) Frequencies in the 450-470 MHz band which are designated as available for assignment to central control stations and radio call box installations in § 90.17(b) or § 90.17(c)(11) may be assigned in the Local Government Radio Service for highway call box systems subject to the following requirements:

(1) Call box transmitters shall be installed only on limited access highways and may communicate only with central control stations of the licensee.

(2) Maximum transmitter power for call boxes will be either 2.5 watts input to the final amplifier stage or one watt output. The central control station shall not exceed 25 watts effective radiated power (ERP).

(3) The height of a call box antenna may not exceed 7 meters (20 feet) above the ground, the natural formation, or the existing man-made structure (other than an antenna supporting structure) on which it is mounted. A central station transmitting antenna, together with its supporting structure shall not exceed 15 m. (50 ft.) above the ground surface.

(4) Only F1, F2, F3, or F9 emission may be authorized for nonvoice signaling, radiotelephony, and multiplexed voice and nonvoice use. The provisions in this part applicable to the use of F3 emission are also applicable to the use of F1, F2, or F9 emission for call box transmitters.

(5) The station identification required by § 90.425 shall be by voice and may be transmitted for the system from the central control station. Means shall be provided at each central control station location to automatically indicate the call box unit identifier when a call box unit is activated.

(6) Call box installations must be so designed that their unit identifier is automatically transmitted when the handset is lifted.

(7) Each application for a call box system must include a description of the nonvoice transmitting equipment. This description shall specify the character structure, bit rate, modulating tone frequencies, identification codes, and the method of modulation (i.e., frequency shift, tone shift, or tone phase shift).

(8) Call box installations may be used secondarily for the transmission of information from roadside sensors. Central control station transmitters may be used secondarily to interrogate call box roadside sensors and for the transmission of signals to activate roadside signs.

(9) Each call box transmitter must be provided with a timer which will automatically deactivate the transmitter after 2 minutes unless the central control station operator reactivates the timer cycle.

(10) The central control station must include facilities that permit direct control of any call box in the system.

(11) Call box transmitter frequency tolerance shall be 0.001 percent.

(12) Transmitters type-accepted under this part for use of F3 emission may be used for F1, F2, or F9 emission provided that the audio tones or digital data bits are passed through the low pass audio filter required to be provided in the transmitter for F3 emission. The transmitter must be adjusted and operated so that the instantaneous frequency deviation does not exceed the maximum value allowed for F3 emission.

(d) In addition to the frequencies available pursuant to § 90.17(b) the frequencies set forth in § 90.17(c)(11) may be used for central control station and call box installations in areas where such frequencies are available for fixed system use subject to the requirements and limitations of that section and subject to the provisions of subdivisions (1), (4), (5), (6), (7), (8), (9), (10), and (12) of paragraph (c) of this section.

(e) In accordance with subpart P of this part, the frequencies available pursuant to § 90.17(b) and § 90.17(c)(11) for central control station and call box installations may be assigned for developmental operation as part of a highway safety communication program which is designed to

provide radio communications directly with motorists to and from their motor vehicles.

§ 90.242 Travelers' information stations.

(a) *The frequencies 530 and 1610 kHz.* May be assigned in the Local Government Radio Service for the operation of Travelers' Information Stations subject to the following conditions and limitations:

(1) For Travelers' Information Station applications only, eligibility requirements as set forth in § 90.17(a) are extended to include park districts and authorities.

(2) Each application for a station or system shall be accompanied by:

(i) A statement certifying that the transmitting site of the Travelers Information Station will be located at least 15.0 km, (9.3 miles) measured orthogonally, outside the measured 0.5 mV/meter daytime contour of any AM broadcast station operating on a first adjacent channel (540 kHz or 1600 kHz). If the measured contour is not available, then the calculated 0.5 mV/m field strength contour shall be acceptable. These contours are available for inspection at the concerned AM broadcast station and FCC offices in Washington, D.C.

(ii) In consideration of possible cross-modulation and inter-modulation interference effects which may result from the operation of a Travelers Information Station in the vicinity of an AM broadcast station on the second or third adjacent channel, the applicant shall certify that he has considered these possible interference effects and, to the best of his knowledge, does not foresee harmful interference occurring to broadcast stations operating on 550 kHz, 560 kHz, 1580 kHz, or 1590 kHz.

(iii) A map showing the geographical location of each transmitter site and an estimate of the signal strength at the contour of the desired coverage area. For a cable system, the contour to be shown is the estimated field strength at 60 meters (197 feet) from any point on the cable. For a conventional radiating antenna, the estimated field strength contour at 1.5 km (0.93 mile) shall be shown. A contour map comprised of actual on-the-air measurements shall be submitted to the Commission within 60 days after station authorization or completion of station construction, whichever occurs later. A sufficient number of points shall be chosen at the specified distances (extrapolated measurements are acceptable) to adequately show compliance with the field strength limits.

(iv) For each transmitter site, the transmitter's output power, the type of antenna utilized, its length (for a cable system), its height above ground, distance from transmitter to the antenna, and the elevation above sea level at the transmitting site.

(3) Travelers Information Stations will be authorized on a secondary basis to stations authorized on a primary basis in the bands 510-535 and 1605-1715 kHz.

(4) A Travelers Information Station authorization may be suspended, modified, or withdrawn by the Commission without prior notice of right to hearing if necessary to resolve interference conflicts, to implement agreements with foreign governments, or in other circumstances warranting such action.

(5) The transmitting site of each Travelers Information Station shall be restricted to the immediate vicinity of the following specified areas: air, train, and bus transportation terminals, public parks and historical sites, bridges, tunnels, and any intersection of a Federal Interstate Highway with any other Interstate, Federal, State, or local highway.

(6) A Travelers Information Station shall normally be authorized to use a single transmitter. However, a system of stations, with each station in the system employing a separate transmitter, may be authorized for a specified area provided sufficient need is demonstrated by the applicant.

(7) Travelers Information Stations shall transmit only noncommercial voice information pertaining to traffic and road conditions, traffic hazard and travel advisories, directions, availability of lodging, rest stops and service stations, and descriptions of local points of interest. It is not permissible to identify the commercial name of any business establishment whose service may be available within or outside the coverage area of a Travelers Information Station. However, to facilitate announcements concerning departures/arrivals and parking areas at air, train, and bus terminals, the trade name identification of carriers is permitted.

(b) *Technical standards.* (1) The use of 6A3 emission will be authorized, however AO emission may be used for purposes of receiver quieting, but only for a system of stations employing "leaky" cable antennas.

(2) A frequency tolerance of 100 Hz shall be maintained.

(3) For a station employing a cable antenna, the following restrictions apply:

(i) The length of the cable antenna shall not exceed 3.0 km (1.9 miles).

(ii) Transmitter RF output power shall not exceed 50 watts and shall be adjustable downward to enable the user to comply with the specified field strength limit.

(iii) The field strength of the emission on the operating frequency shall not exceed 2 mV/m when measured with a standard field strength meter at a distance of 60 meters (197 feet) from any part of the station.

(4) For a station employing a conventional radiating antenna(s) (ex. vertical monopole, directional array) the following restrictions apply:

(i) The antenna height above ground level shall not exceed 15.0 meters (49.2 feet).

(ii) Only vertical polarization of antennas shall be permitted.

(iii) Transmitter RF output power shall not exceed 10 watts to enable the user to comply with the specified field strength limit.

(iv) The field strength of the emission on the operating frequency shall not exceed 2 mV/m when measured with a standard field strength meter at a distance of 1.50 km (0.93 miles) from the transmitting antenna system.

(5) For co-channel stations operating under different licenses, the following minimum separation distances shall apply:

(i) 0.50 km (0.31 miles) for the case when both stations are using cable antennas.

(ii) 7.50 km (4.66 miles) for the case when one station is using a conventional antenna and the other is using a cable antenna.

(iii) 15.0 km (9.3 miles) for the case when both stations are using conventional antennas.

(6) For a system of co-channel transmitters operating under a single authorization utilizing either cable or conventional antennas, or both, no minimum separation distance is required.

(7) An applicant desiring to locate a station that does not comply with the separation requirements of this section shall coordinate with the affected station.

(8) Each transmitter in a Travelers Information Station shall be equipped with an audio low-pass filter. Such filter shall be installed between the modulation limiter and the modulated stage. At audio frequencies between 3 kHz and 20 kHz this filter shall have an attenuation greater than the attenuation at 1 kHz by at least:

$$60 \log_{10} (f/3) \text{ decibels.}$$

where "f" is the audio frequency in kHz. At audio frequencies above 20 kHz, the attenuation shall be at least 50 decibles greater than the attenuation at 1 kHz.

§ 90.243 Mobile relay stations.

(a) Mobile relay stations under this part may be authorized only as follows:

(1) On frequencies below 450 MHz, mobile relay stations may be authorized to operate only in the Police, Fire, Local Government, Highway Maintenance, Forestry Conservation, Power,

Petroleum, Forest Products, Telephone Maintenance, and Railroad Radio Services.

Outside the contiguous 48 states mobile relay operations below 450 MHz may also be authorized in the Business and Special Industrial Radio Services.

(2) Mobile relay stations will be authorized on frequencies between 450 MHz and 470 MHz in all of the services governed by this part except for the Radiolocation, Motor Carrier, Taxicab and Automobile Emergency Radio Services.

(3) Mobile relay stations will be authorized on frequencies between 470 MHz and 512 MHz in all of the services that have been allocated such frequencies.

(b) Special provisions for mobile relay operations:

(1) In the Special Emergency Radio Service, Medical Services systems in the 150–160 MHz band are permitted to be cross-banded for mobile and central station operations with mobile relay stations authorized to operate in the 450–470 MHz band.

(2) In the Business Radio Service, mobile relay stations operating on frequencies below 450 MHz will only be authorized when all control and mobile stations are operated on frequencies designated for low power operation (2 watts or less). For such operations the maximum output power shall not exceed 1 watt and the mobile relay antenna system shall not be more than 13 m. (40 ft.) above ground.

(3) In the Railroad Radio Service, mobile relay operation shall be on a secondary basis to other co-channel operations.

(4) Except where specifically precluded, a mobile relay station may be authorized to operate on any frequency available for assignment to base stations.

(5) A mobile station associated with mobile relay station(s) may not be authorized to operate on a frequency below 25 MHz.

(c) Technical requirements for mobile relay stations.

(1) Each new mobile relay station with an output power of more than one watt, and authorized after January 1, 1972, that is activated by signals below 50 MHz shall deactivate the station upon cessation of reception of the activating continuous coded tone signal. Licensees may utilize a combination of digital selection and continuous coded tone control where required to insure selection of only the desired mobile relay station.

(2) Mobile relay stations controlled by signals above 50 MHz or authorized prior to January 1, 1972, to operate below 50 MHz are not required to incorporate coded signal or tone control devices unless the transmitters are consistently activated by undesired signals and cause harmful interference to other licensees. If activation by undesired signals causes harmful interference, the Commission will require the installation of tone control equipment within 90 days of a notice to the licensee.

(3) Except in the Railroad Radio Service, each new mobile-relay station authorized after January 1, 1972, shall be equipped for automatic deactivation of the transmitter within 5 seconds after the signals controlling the station cease.

(4) Except in the Railroad Radio Service, each new mobile relay station authorized after January 1, 1972, during periods that it is not controlled from a manned fixed control point; shall have an automatic time delay or clock device that will deactivate the station not more than 3 minutes after its activation by a mobile unit.

(5) In the Railroad Radio Service, each mobile relay station, regardless of the frequency or frequencies of the signals by which it is activated shall be so designated and installed that it will be deactivated automatically when its associated receiver or receivers are not receiving a signal on the frequency or frequencies which normally activate it.

(6) Multiple mobile relay station radio systems shall use wireline or radio stations on fixed frequencies for any necessary interconnect circuits between the mobile relay stations.

§ 90.245 Fixed relay stations.

Except where specifically provided for, fixed relay stations shall be authorized to operate only on frequencies available for use by operational fixed stations.

§ 90.247 Mobile repeater stations.

A mobile station authorized to operate on a mobile service frequency above 25 MHz may be used as a mobile repeater to extend the communications range of hand-carried units subject to the following:

(a) Mobile repeaters and/or associated hand-carried transmitters may be assigned separate base/mobile frequencies for this use (including, in the Railroad Radio Service, any "base only" frequency in the 450–470 MHz range) in addition to the number of frequencies normally assignable to the licensee.

(b) In the Business and Special Industrial Radio Services on frequencies below 450 MHz, only low-power frequencies (2 watts or less output power) may be assigned for use by mobile repeaters or by hand-carried transmitters whose communications are directed to mobile repeaters, when separate frequencies are assigned for that purpose.

(c) Except as provided in paragraph (d) of this section, hand-carried transmitters whose communications will be automatically relayed by mobile stations shall be limited to a maximum output power of 2.5 watts.

(d) In the Railroad Radio Service, use of mobile repeaters is on a secondary basis to the stations of any other licensee. Hand-carried units used in connection with mobile repeaters in the Railroad Radio Service may operate only above 150 MHz and are limited to a maximum output power of 6 watts. The frequency and maximum power shall be specified in the station authorization.

(e) In the Railroad Radio Service, the output power of a mobile repeater station, when transmitting as a repeater station on the frequency used for communication with its associated pack-carried or hand-carried units, shall not exceed 6 watts except when the same frequency is also used by the same station for direct communication with vehicular mobile units or with one or more base stations.

(f) When automatically retransmitting messages originated by or destined for hand-carried units, each mobile station shall activate the mobile transmitter only with a continuous coded tone, the absence of which will de-activate the mobile transmitter. The continuous coded tone is not required when the mobile unit is equipped with a switch that activates the automatic mode of the mobile unit and an automatic time-delay device that de-activates the transmitter after any uninterrupted transmission period in excess of 3 minutes.

§ 90.249 Control stations.

Control stations associated with land mobile stations under this part shall be authorized to operate subject to the following:

(a) *Frequencies for control stations.* (1) Control stations may be authorized to operate on frequencies available for use by operational fixed stations.

(2) A control station associated with mobile relay station(s) may, at the option of the applicant, be assigned the frequency of the associated mobile station. In the Railroad Radio Service such a control station may be assigned any mobile service frequency available for assignment to mobile stations in that service. Such operation is on a secondary basis to use of the frequency for regular mobile service communications. In the band 450–470 MHz, such operation is subject to the provisions of paragraph (b) of this section.

(3) Control and fixed stations in the Public Safety and Special Emergency Radio Services may be authorized on a temporary basis to operate on frequencies available for base and mobile sta-

tions between 152 and 450 MHz, where there is an adequate showing that such operations cannot be conducted on frequencies allocated for assignment to operational fixed stations. Such operation will not be authorized initially or renewed for periods in excess of one year. Any such authorization shall be subject to immediate termination if harmful interference is caused to stations in the mobile service, or if the particular frequency is required for mobile service operations in the area concerned.

(b) Control stations operating on frequencies in the band 450-470 MHz shall comply with the following requirements if they are located within 120 km. (75 mi.) of the center of urbanized areas of 200,000 or more population as defined in the U.S. Census of Population, 1960, Vol. 1, Table 23, Page 50. The centers of urbanized areas are determined from the Appendix, page 226 of the U.S. Commerce Publication "Airline Distance Between Cities in the United States".

(1) If the station is used to control one mobile relay station or two or more mobile relay stations located within 45 degrees of azimuth, a directional antenna having a front-to-back ratio of at least 15 dB shall be used at the control station. For other situations, a directional or omnidirectional antenna may be employed. In each case, the antenna used must, to the exent practical, produce a radiation pattern that provides only the coverage necessary to permit satisfactory control of each mobile relay station and limit radiation in other directions.

(2) The strength of the signal of a control station, controlling a single mobile relay station, may not exceed by more than 6 dB, the signal strength produced by a unit of the associated mobile station at the antenna terminal of the mobile relay receiver. When the station controls more than one mobile relay station, the 6 dB control-to-mobile signal difference need be verfied at only one of the mobile relay station sites. The measurement of the signal strength of the mobile unit must be made when such unit is transmitting from the control station location or, if that is not practical, from a location within one-fourth mile (0.4 km) of the control station site.

(c) A base station which is used intermittently as a control station for one or more associated mobile relay stations of the same licensee shall operate only on the mobile service frequency assigned to the associated mobile relay station when operating as a base station and on the mobile service frequency assigned to the associated mobile station when operating as a control station. Authority for such dual classification and use must be shown on the station authorization. When operating as a control station, the licensee must meet all control station requirements. In the Railroad Radio Service base stations used intermittently as control stations shall operate only on a mobile service frequency which is available for assignment to base stations.

Subpart K—Standards for Special Frequencies or Frequency Bands.

§ 90.251 Scope.

This subpart sets forth special requirements applicable to the use of certain frequencies (4383.8 kHz) or frequency bands. (27.235-27.275, 72-76, 216-220, 450-470, and 1427-1435 MHz).

§ 90.253 Use of frequency 4383.8 kHz.

The frequency 4383.8 kHz may be used by any station authorized under this part, to communicate with any other station in the State of Alaska for emergency communications. The maximum power permitted is 150 watts peak envelope power (PEP). Airborne operations will not be permitted. All stations operating on this frequency must be located in or within 50 nautical miles (92.6 km) of the state of Alaska.

§ 90.255 Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz.

(a) Effective September 10, 1976, station authorizations for the use of 27.235, 27,245, 27,255, 27,265, and 27,275 MHz will be issued only to applicants in the Personal Radio Services. Licenses in the Radio Services under this part authorizing the use of these frequencies shall remain valid until December 31, 1979, or, if such licenses expire prior to December 31, 1979, they may be renewed and will be given expiration dates of December 31, 1979. Licenses issued under this subpart for frequencies between 26.96 and 27.41 MHz should be modified prior to December 31, 1979, to permit operation on other authorized frequencies.

(b) Prior use of these frequencies is subject to the following limitations:

(1) The bandwidth of emission shall not exceed 8 kHz.

(2) The output power shall be limited to no more than 20 watts.

(3) All operation is subject to interference from the operation of industrial, scientific, and medical devices on the frequency 27.12 MHz.

§ 90.257 Assignment and use of frequencies in the band 72-76 MHz.

(a) The following criteria shall govern the authorization and use of frequencies within the band 72-76 MHz by fixed stations. (For call box operations see § 90.241).

(1) The following frequencies in the band 72-76 MHz may be used for fixed operations:

Megahertz

72.02 72.04 72.06 72.08 72.10 72.12 72.14 72.16 72.18 72.20 72.22 72.24 72.26 72.28 72.30 72.32 72.34 72.36 72.38 72.40 72.42 72.46 72.50 72.54 72.58 72.62 72.64 72.66 72.68 72.70 72.72 72.74 72.76 72.78 72.80 72.82 72.84 72.86 72.88 72.90 72.92 72.94 72.96 72.98 75.42 75.46 75.50 75.54 75.78 75.62 75.64 75.66 75.68 75.70 75.72 75.75 75.76 75.78 75.80 75.82 75.84 75.86 75.88 75.90 75.92 75.94 75.96 75.98

(2) All authorizations are subject to the condition that no harmful interference will be caused to television reception on channels 4 and 5.

(3) The applicant must agree to eliminate any harmful interference caused by his operation to TV reception on either channel 4 or 5 that might develop by whatever means are necessary. Such action must be taken within 90 days of notification by the Commission. If such interference is not eliminated within the 90-day period, operation of the fixed station will be discontinued.

(4) Vertical polarization must be used.

(5) Whenever it is proposed to locate a 72-76 MHz fixed station less than 128 km (80 mi.) but more than 16 km (10 mi.) from the site of a TV transmitter operating on either channel 4 or 5, or from the post office of a community in which such channels are assigned but not in operation, the fixed station shall be authorized only if there are fewer than 100 family dwelling units (as defined by the U.S. Bureau of the Census), excluding units 112 or more km (70 mi.) distant from the TV antenna site, located within a circle centered at the location of the proposed fixed station. The radius shall be determined by use of the following chart entitled, "Chart for Determining Radius From Fixed Station in 72-76 MHz Band to Interference Contour Along Which 10 Percent of Service From Adjacent Channel Television Station Would Be Destroyed." Two charts are available, one for channel 4, and one for channel 5. The Commission may, however, in a particular case, authorize the location of a fixed station within a circle containing 100 or more family dwelling units upon a showing that:

(i) The proposed site is the only suitable location.

(ii) It is not feasible, technically or otherwise, to use other available frequencies.

(iii) The applicant has a plan to control any interference that might develop to TV reception from his operations.

(iv) The applicant is financially able and agrees to make such adjustments in the TV receivers affected as may be

necessary to eliminate any interference caused by his operations.

(v) All applications seeking authority to operate with a separation of less than 16 km (10 mi.) will be returned without action.

(b) The following criteria shall govern the authorization and use of frequencies within the band 72-76 MHz by mobile stations in the Special Industrial, Manufacturers, and Railroad Radio Services.

(1) Mobile operation on frequencies in the 72 to 76 MHz band is subject to condition that no interference is caused to the reception of television stations operating on channels 4 or 5. Interference will be considered to occur whenever reception of a regularly used television signal is impaired by signals radiated by stations operating under these rules in the 72 to 76 MHz band regardless of the quality of such reception or the strength of the signal used. In order to minimize the hazard of such interference, it shall be the duty of the licensee to determine whether interference is being caused to television reception, wherever television receivers other than those under the control of the licensee, are located within 31 m. (100 ft.) of any point where the stations licensed under these rules may be operated. In any case, it shall be the responsibility of the licensee to correct, at its own expense, any such interference and if the interference cannot be eliminated by the application of suitable techniques, the operation of the offending transmitter shall be suspended. If the complainant refuses to permit the licensee to apply remedial techniques which demonstrably will eliminate the interference without impairment of the original reception, the licensee is absolved of further responsibility.

(2) The maximum transmitter output power that will be authorized is 1 watt; and each station authorized will be classified and licensed as a mobile station. Any units of such a station, however, may be used to provide the operational functions of a base or fixed station. The antennas of transmitters operating on these frequencies must be directly mounted or installed upon the transmitting unit: Except that when permanently installed aboard a vehicle, antenna and transmitter may be separated as required for convenience in mounting. Horizontal polarization will not be allowed; and the gain of antennas employed shall not exceed that of half-wave dipole. The maximum bandwidth that will be authorized is 20 kHz. Tone control transmissions are permitted.

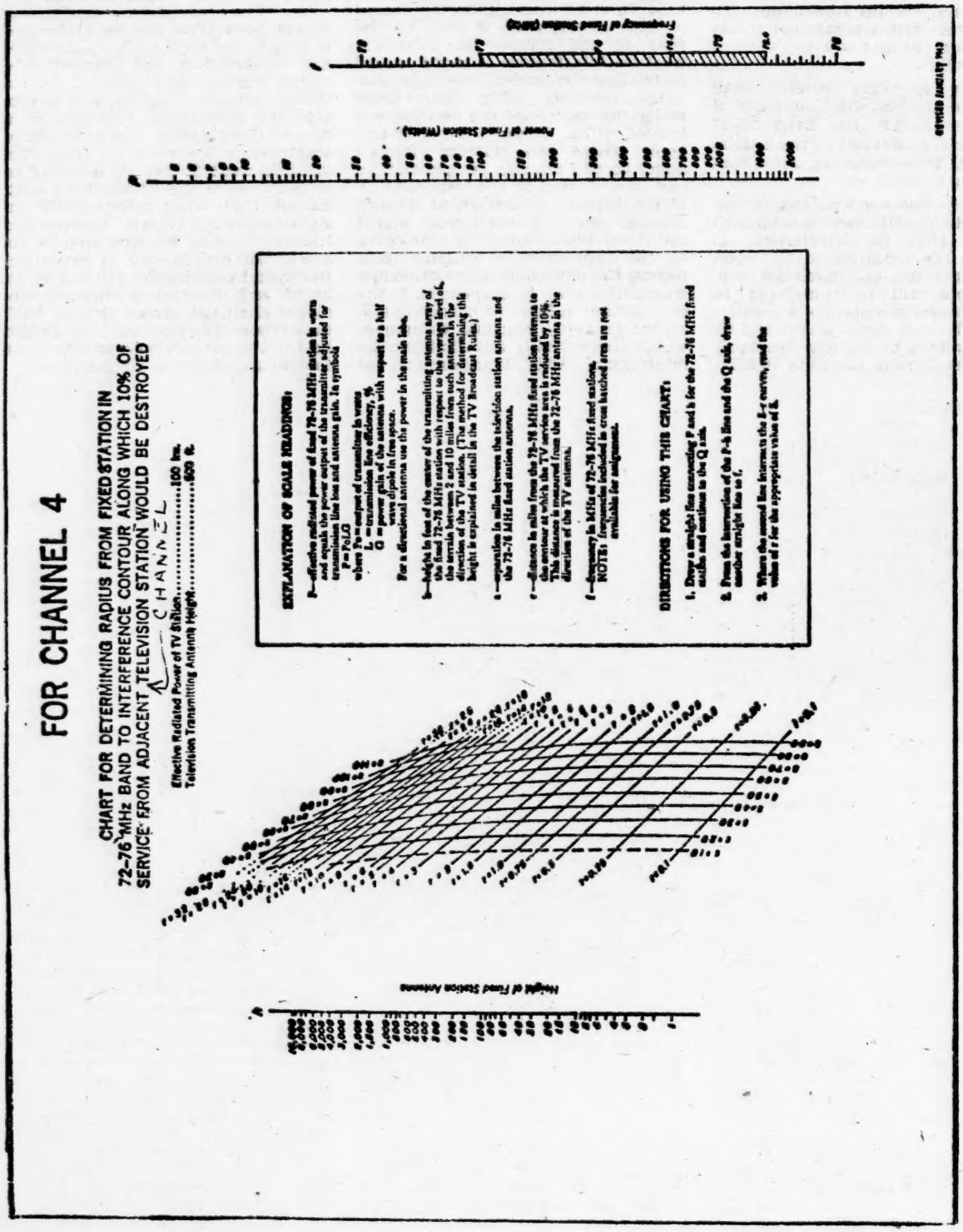
[6712-01-C]

FOR CHANNEL 4

CHART FOR DETERMINING RADIUS FROM FIXED STATION IN 72–76 MHz BAND TO INTERFERENCE CONTOUR ALONG WHICH 10% OF SERVICE FROM ADJACENT TELEVISION STATION WOULD BE DESTROYED

CHANNEL

Effective Radiated Power of TV Station.....100 kw.
Television Transmitting Antenna Height.....609 ft.

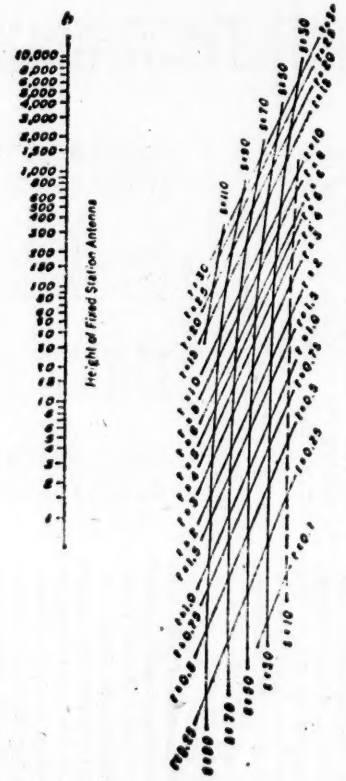

EXPLANATION OF SCALE HEADINGS:
P—effective radiated power of fixed 72–76 MHz station in watts and equals the power output of the transmitter adjusted for transmission line loss and antenna gain. In symbols
P=PoLG
where Po=output of transmitter in watts
L=transmission line efficiency, %
G=power gain of the antenna with respect to a half wave dipole in free space.
For a directional antenna use this power in the main lobe.
h—height in feet of the center of the transmitting antenna array of the fixed 72–76 MHz station with respect to the average level of the terrain between 2 and 10 miles from such antenna in the direction of the TV station. (The method for determining this height is explained in detail in the TV Broadcast Rules.)
s—separation in miles between the television station antenna and the 72–76 MHz fixed station antenna.
r—distance in miles from the 72–76 MHz fixed station antenna to the contour at which the TV service area is reduced by 10%. This distance is measured from the 72–76 MHz antenna in the direction of the TV antenna.
f—frequency in MHz of 72–76 MHz fixed stations.
NOTE: Frequencies included in cross hatched area are not available for assignment.
DIRECTIONS FOR USING THIS CHART:
1. Draw a straight line connecting P and h for the 72–76 MHz fixed station and continue to the Q axis.
2. From the intersection of the P–h line and the Q axis, draw another straight line to f.
3. Where the second line intersects the S–r curves, read the value of r for the appropriate value of S.
Power of Fixed Station (Watts)
Frequency of Fixed Station (MHz)
Height of Fixed Station Antenna

FOR CHANNEL 5

CHART FOR DETERMINING RADIUS FROM FIXED STATION IN 72–76 MHz BAND TO INTERFERENCE CONTOUR ALONG WHICH 10% OF SERVICE FROM ADJACENT TELEVISION STATION WOULD BE DESTROYED

↑ CHANNEL

Effective Radiated Power of TV Station.....100 kw.
Television Transmitting Antenna Height.....500 ft.



EXPLANATION OF SCALE HEADINGS:

P—effective radiated power of fixed 72–76 MHz station in watts and equals the power output of the transmitter adjusted for transmission line loss and antenna gain. In symbols

$P = PoLG$

where Po = output of transmitter in watts
L = transmission line efficiency, %
G = power gain of the antenna with respect to a half wave dipole in free space.

For a directional antenna use the power in the main lobe.

h— height in feet of the center of the transmitting antenna array of the fixed 72–76 MHz station with respect to the average level of the terrain between 2 and 10 miles from such antenna in the direction of the TV station. (The method for determining this height is explained in detail in the TV Broadcast Rules.)

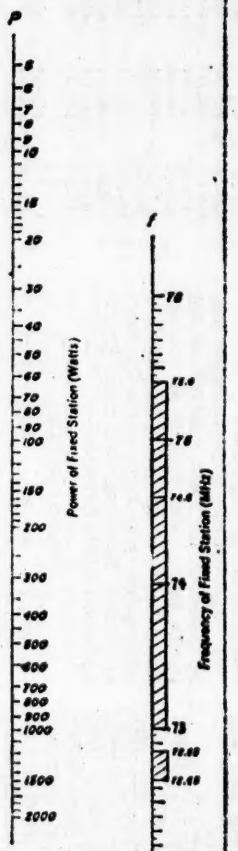
s—separation in miles between the television station antenna and the 72–76 MHz fixed station antenna.

r—distance in miles from the 72–76 MHz fixed station antenna to the contour at which the TV service area is reduced by 10%. This distance is measured from the 72–76 MHz antenna in the direction of the TV antenna.

f—frequency in MHz of 72–76 MHz fixed stations.
NOTE: frequencies included in cross hatched area are not available for assignment.

DIRECTIONS FOR USING THIS CHART:

1. Draw a straight line connecting P and h for the 72–76 MHz fixed station and continue to the Q axis.
2. From the intersection of the P–h line and the Q axis, draw another straight line to f.
3. Where the second line intersects the S–r curve, read the value of r for the appropriate value of S.



REVISED JANUARY 1963

§ 90.259 Assignment and use of frequencies in the bands 216–220 MHz and 1427–1435 MHz.

Frequencies in the bands 216-220 MHz and 1427-1435 MHz may be assigned to applicants under this part provided the band is listed in the individual radio service under which they establish eligibility. Use of these bands is limited to telemetering purposes only and all operation is secondary to Federal Government operations. Base stations authorized in this band shall be used to perform telecommand functions with associated mobile telemetering stations. Base stations may also command actions by the vehicle itself, but will not be authorized solely to perform this function. Airborne use will not be authorized. Each application will be coordinated with the Federal Government by the Federal Communications Commission and is subject to such technical and operational limitations as may be imposed by the government. Each application should include precise information concerning emission characteristics, transmitter frequency deviation, output power, type and directional characteristics, if any, of the antenna, and the minimum necessary hours of operation.

§ 90.261 Assignment and use of frequencies in the band 450–470 MHz for fixed operations.

The following frequencies may be assigned for fixed operations, on a secondary basis to land mobile operations, to eligibles in the services indicated. All such use of these frequencies for fixed systems is limited to locations 85 or more miles (136.79 or more km) from the center of any urbanized area of 600,000 or more population, except that the distance may be 65 miles (104.6 km), if the output power does not exceed 20 watts. All such fixed systems are limited to a maximum of two frequencies and must employ directional antennas with a front-to-back ratio of at least 15 dB. For two-frequency systems, the separation between transmit-receive frequencies is 5 MHz. Fixed stations located more than 136 km (85 mi.) from the center of urbanized areas of 600,000 or more population and operating on frequencies no longer available for that use may continue indefinitely until such time as modification involving addition of new facilities is proposed. Such use is, however, on a secondary basis to land mobile operations and harmful interference may not be caused to land mobile stations. The centers of urbanized areas are determined from the Appendix, Page 226, of the U.S. Commerce publication "Air Line Distance Between Cities in the United States." Urbanized areas of 600,000 or more population are defined in the U.S. Census of Population, 1970, Vol. 1, table 20, pages 1-74.

(a) The following frequencies may be assigned to fixed stations in the Public Safety and Special Emergency Radio Services, on a secondary basis to land mobile operations in the Industrial (except Business) and Land Transportation Radio Services.

FREQUENCIES (MHz)

451.025	451.050	451.075	451.100
451.125	451.150	451.175	451.200
451.225	451.250	451.275	451.300
451.325	451.350	451.375	451.400
451.425	451.450	451.475	451.500
451.525	451.550	451.575	451.600
451.625	451.650	451.675	451.700
451.725	451.750	451.775	451.825
451.850	451.875	451.900	451.925
451.950	451.975	452.000	452.025
452.050	452.075	452.100	452.125
452.150	452.175	452.200	452.225
452.250	452.275	452.300	452.325
452.350	452.375	452.400	452.425
452.450	452.475	452.500	452.625
452.650	452.675	452.700	452.725
452.750	452.775	452.800	452.825
452.850	452.875	452.900	452.975
453.000	456.025	456.050	456.075
456.100	456.125	456.150	456.175
456.200	456.225	456.250	456.275
456.300	456.325	456.350	456.375
456.400	456.425	456.450	456.475
456.500	456.525	456.550	456.575
456.600	456.625	456.650	456.675
456.700	456.725	456.750	456.775
456.825	456.850	456.875	456.900
456.925	456.950	456.975	457.000
457.025	457.050	457.075	457.100
457.125	457.150	457.175	457.200
457.225	457.250	457.275	457.300
457.325	457.350	457.375	457.400
457.425		457.475	457.500
457.625	457.650	457.675	457.700
457.725	457.750	457.775	457.800
457.825	457.850	457.875	457.900
457.975	458.000	462.200	462.225
462.250	462.275	462.300	462.325
462.350	462.375	462.400	462.425
462.450	462.475	462.500	462.525
467.200	467.225	467.250	467.275
467.300	467.325	467.350	467.375
467.400	467.425	467.450	467.475
467.500	467.525		

(b) The following frequencies may be assigned to fixed stations in the Industrial Radio Services (except Business) on a secondary basis to land mobile operations in the Public Safety, Special Emergency, and Land Transportation Radio Services.

FREQUENCIES MHz

452.050	452.100	452.150	452.200
452.225	452.250	452.275	452.300
452.325	452.350	452.375	452.400
452.425	452.450	452.475	452.500
452.625	452.650	452.675	452.700
452.725	452.750	452.775	452.800
452.825	452.850	452.875	452.900
453.050	453.100	453.150	453.200
453.225	453.250	453.275	453.300
453.325	453.350	453.375	453.400
453.425	453.550	453.575	453.500
453.525	453.550	453.575	453.600
453.625	453.650	453.675	453.700
453.725	453.750	453.775	453.800
453.825	453.850	453.875	453.900
453.925	453.950	453.975	457.050
457.100	457.150	457.200	457.225
457.250	457.275	457.300	457.325
457.350	457.375	457.400	457.425
457.450	457.475	457.500	457.625
457.650	457.675	457.700	457.725
457.750	457.775	457.800	457.825
457.850	457.875	457.900	
458.050	458.100	458.150	458.200

FREQUENCIES MHz—Continued

458.225	458.250	458.275	458.300
458.325	458.350	458.375	458.400
458.425	458.450	458.475	458.500
458.525	458.550	458.575	458.600
458.625	458.650	458.675	458.700
458.725	458.750	458.775	458.800
458.825	458.850	458.875	458.900
458.925	458.950	458.975	460.025
460.050	460.075	460.100	460.125
460.150	460.175	460.200	460.225
460.250	460.275	460.300	460.325
			460.350
	452.375	460.400	460.425
460.450	460.475	460.500	460.525
			460.550
	460.575	460.600	460.625
465.025	465.050	465.075	465.100
			465.125
	465.150	465.175	465.200
465.225	465.250	465.275	465.300
			465.325
	465.350	465.375	465.400
465.425	465.450	465.475	465.500
			465.525
	465.550	465.575	465.600
465.625			

(c) The following frequencies may be assigned to fixed stations in the Land Transportation Radio Services on a secondary basis to land mobile operations in the Public Safety and Industrial (except Business) Radio Services.

FREQUENCIES MHz

451.025	451.050	451.075	451.100
451.125	451.150	451.175	451.200
451.225	451.275	451.300	451.325
451.350	451.375	451.400	451.425
451.450	451.475	451.500	451.525
451.550	451.575	451.600	451.625
451.650	451.675	451.700	451.725
451.750	451.775	451.825	451.850
451.875	451.900	451.925	451.950
451.975	452.000	452.025	452.075
452.125	452.175	452.975	453.000
453.050	453.100	453.150	453.200
453.225	453.250	453.275	453.300
453.325	453.350	453.375	453.400
453.425	453.450	453.475	453.500
453.525	453.550	453.575	453.600
453.625	453.650	453.675	453.700
453.750	453.775	453.800	453.825
453.850	453.875	453.900	453.925
453.950	453.975	456.025	456.050
456.075	456.100	456.125	456.150
456.175	456.200	456.225	456.250
456.275	456.300	456.325	456.350
456.375	456.400	456.425	456.450
456.475	456.500	456.525	456.550
456.575	456.600	456.625	456.650
456.675	456.700	456.725	456.750
456.775	456.825	456.850	456.875
456.900	456.925	456.950	456.975
457.000	457.025	457.075	451.125
457.175	457.975	458.000	458.050
458.100	458.200	458.225	458.250
458.275	458.300	458.325	458.350
458.375	458.400	458.425	458.450
458.475	458.500	458.525	458.550
458.575	458.600	458.625	458.650
458.675	458.700	458.725	458.750
458.775	458.800	458.825	458.850
458.875	458.900	458.925	458.950
460.025	460.050	460.075	460.100
460.125	460.150	460.175	460.200
460.225	460.525	460.250	460.275
460.300	460.325	460.350	460.375
460.400	460.425	460.450	460.475
460.500	460.550	460.575	460.600
460.625	462.200	462.225	462.250
462.275	462.300	462.325	462.350
462.375	462.400	462.425	462.450
462.475	462.500	462.525	465.025
465.050	465.075	465.100	465.125
465.150	465.175	475.200	465.225
465.250	465.275	465.300	465.325
465.350	465.375	465.400	465.425
465.450	465.475	465.500	465.525
465.550	465.575	465.600	465.625

FREQUENCIES MHz—Continued

467.200	467.225	467.250	467.275
467.300	467.325	467.350	467.375
467.400	467.425	467.450	467.475
467.500	467.525		

(d) Frequencies subject to section 90.75(c)(26) may be used secondarily for fixed operations subject to the technical limitations of this section.

§ 90.263 Substitution of frequencies below 25 MHz.

Frequencies below 25 MHz when shown in radio service frequency listings under this part will be assigned to base or mobile stations only upon a satisfactory showing that, from a safety of life standpoint, frequencies above 25 MHz will not meet the operational requirements of the applicant. These frequencies are available for assignment in many areas; however, in individual cases such assignment may be impracticable due to conflicting frequency use authorized to stations in other services by this and other countries. In such cases, a substitute frequency, if found to be available, may be assigned from the following bands 1605–1750, 2107–2170, 2194–2495, 2505–2850, 3155–3400, or 4438–4650 kHz. Since such assignments are in certain instances subject to additional technical and operation limitations, it is necessary that each application also include precise information concerning transmitter output power, type and directional characteristics, if any, of the antenna, and the minimum necessary hours of operation. (This section is not applicable to the Radiolocation Radio Service, Subpart F.)

§ 90.265 Assignment and use of frequencies in the bands 169–172 MHz and 406–413 MHz.

(a) The following frequencies are available for assignment to fixed stations in the Power, Petroleum, Forest Products, Special Industrial, Business and Railroad Radio Services subject to the provisions of this section:

FREQUENCIES (MHz)

169.425	170.275	171.125	406.175
169.450	170.300	171.825	409.675
169.475	170.325	171.850	409.725
169.500	171.025	171.875	412.625
169.525	171.050	171.900	412.675
170.225	171.075	171.925	412.725
170.250	171.100	406.125	412.775

(b) The use of these frequencies is limited to transmitting hydrological or meteorological data.

(c) All use of these frequencies is on a secondary basis to Federal Government stations and the hydrological or meteorological data being handled must be made available on request to governmental agencies.

(d) Other provisions of this part notwithstanding, an operational fixed station operating on these frequencies shall not communicate with any station in the mobile service unless written authorization to do so has been obtained from the Commission.

(e) Persons who desire to operate stations on these frequencies should communicate with the Commission for instructions concerning the procedure to be followed in filing formal application.

Subpart L—Authorization in the Band 470–512 MHz (UHF–TV Sharing)

§ 90.301 Scope.

This subpart governs the authorization and use of frequencies by land mobile stations in the band 470–512 MHz on a geographically shared basis with Television Broadcast stations. Under this special sharing plan, different radio services are allocated different specific frequencies in this band depending upon the geographic urban area involved as fully detailed in the following rule sections.

§ 90.303 Availability of frequencies.

(a) Frequencies in the band 470–512 MHz are available for assignment in the urbanized areas listed below. The specific frequencies available to each radio service are listed in section 90.311.

Frequency Availability for Land Mobile Use

Urbanized area	Geographic center		Channel	Frequencies (megahertz)
	North latitude	West longitude		
Boston, Mass.	42°21'24"	71°03'24"	14	470–476
			16	482–488
Chicago, Ill.[1]	41°52'28"	87°38'22"	14	470–476
			15	476–482
Cleveland, Ohio [2]	41°29'51"	81°41'50"	14	470–476
			15	476–482
Dallas/Fort Worth, Tex	32°47'09"	96°47'37"	16	482–488
Detroit, Mich.[3]	42°19'48"	83°02'57"	15	476–482
			16	482–488
Houston, Tex	29°45'26"	95°21'37"	17	488–494
Los Angeles, Calif	34°03'15"	118°14'28"	14	470–476
			20	506–512
Miami, Fla	25°46'37"	80°11'32"	14	470–476
New York	40°45'06"	73°59'39"	14	470–476
Northeastern, N.J.			15	476–482
Philadelphia, Pa.	39°56'58"	75°09'21"	19	500–506
			20	506–512
Pittsburgh, Pa	40°26'19"	80°00'00"	14	470–476
			18	494–500
San Francisco	37°46'39"	122°24'40"	16	482–488
Oakland, Calif.			17	488–494
Washington, D.C.	38°53'51"	77°00'33"	17	488–494
Maryland			18	494–500
Virginia				

[1] In the Chicago, Ill., urbanized area, channel 15 frequencies may be used for paging operations in addition to low power base/mobile usages, where applicable protection requirements for ultrahigh frequency television stations are met.

[2] Channels 14 and 15 are not available in Cleveland, Ohio, until further order from the Commission.

[3] Channels 15 and 16 are not available in Detroit, Mich., until further order from the Commission.

§ 90.305 Location of stations.

(a) The transmitter site(s) for base station(s), including mobile relay stations, shall be located not more than 80 km. (50 mi.) from the geographic center of the urbanized area listed in § 90.303.

(b) Mobile units shall be operated within 48 km. (30 mi.) of their associated base station or stations. Such units may not be operated aboard aircraft in flight except as provided for in § 90.315(i).

(c) Control stations must be located within the area of operation of the mobile units.

(d) Base and control stations shall be located a minimum of 1.6 km. (1 mi.) from local television stations operating on UHF TV channels separated by 2, 3, 4, 5, 7, and 8 TV channels from the

television channel in which the base station will operate.

§ 90.307 Protection criteria.

The tables and figures listed in § 90.309 shall be used to determine the proper power (ERP) and antenna height of the proposed land mobile base station and the proper power (ERP) for the associated control station (control station antenna height shall not exceed 31 m. (100 ft.) above average terrain (AAT)).

(a) Base stations operating on the frequencies available for land mobile use in any listed urbanized area and having an antenna height (AAT) less than 152 m. (500 ft.) shall afford protection to co-channel and adjacent channel television stations in accordance with the values set out in Tables A and E of this subpart, except for Channel 15 in New York, N.Y., and Cleveland, Ohio, and Channel 16 in Detroit, Mich., where protection will be in accordance with the values set forth in Tables B and E.

(b) For base stations having antenna heights between 152-914 meters (500-3,000 ft.) above average terrain, except as noted in paragraph (f), the effective radiated power must be reduced below 1 kilowatt in accordance with the values shown in the power reduction graph in Figure A, except for Channel 15 in New York, N.Y., and Cleveland, Ohio, and Channel 16 in Detroit, Mich., where the effective radiated power must be reduced in accordance with Figure B. For heights of more than 152 m. (500 ft.) above average terrain, the distance to the radio path horizon will be calculated assuming smooth earth. If the distance so determined equals or exceeds the distance to the Grade B contour of a co-channel TV station, (Grade B contour defined in Section 73.683(a)) an authorization will not be granted unless it can be shown that actual terrain considerations are such as to provide the desired protection at the Grade B contour, or that the effective radiated power will be further reduced so that, assuming free space attenuation, the desired protection at the Grade B contour will be achieved.

(c) Mobile units and control stations operating on the frequencies available for land mobile use in any given urbanized area shall afford protection to co-channel and adjacent channel television stations in accordance with the values set forth in Table C and paragraph (d) of this section except for Channel 15 in New York, N.Y., and Cleveland, Ohio, and channel 16 in Detroit, Mich., where protection will be in accordance with the values set forth in Table D and paragraph (d) of this section.

(d) The minimum distance between a land mobile base station which has associated mobile units and a protected adjacent channel television station is 90 miles (145 km).

(e) The television stations to be protected (co-channel, adjacent channel, IM, and IF) in any given urbanized area, in accordance with the provisions of subparagraphs (a), (b), (c), and (d) of this paragraph, are identified in the commission's publication "TV stations to be considered in the preparation of Applications for Land Mobile Facilities in the Band 470-512 MHz." The publication is available at the offices of the Federal Communications Commission at Washington, D.C. or upon the request of interested persons.

(f) For stations in the Los Angeles urbanized area with antenna elevations of 457 m. or more (1,500 ft.) above sea level, the maximum authorized effective radiated power (ERP) shall be in accordance with the following table:

Antenna height (above sea level)	Power, effective radiated power (watts)
1,500 to 2,000 ft (457 to 609 m)	155
2,000 to 2,500 ft (609 to 762 m)	100
2,500 to 3,000 ft (762 to 914 m)	70
3,000 to 3,500 ft (914 to 1,066 m)	50
3,500 to 4,000 ft (1,066 to 1,219 m)	40
4,000 to 4,500 ft (1,219 to 1,371 m)	30
Above 4,500 ft (1,371 m)	25

NOTE.—Existing stations may continue to use presently authorized powers until Jan. 1, 1980.

§ 90.309 Tables and figures.

(a) *Directions for using the tables.*

(1) Using the method specified in 73.611 or charts or maps of suitable scale, determine the distances (i) between the proposed land mobile base station and the protected cochannel television station and (ii) between the proposed land mobile base station and the protected adjacent channel television station. If the exact mileage does not appear in table A for protected co-channel television stations (or table B for channel 15 in New York and Cleveland and channel 16 in Detroit) or table E for protected adjacent channel television stations, the next lower mileage separation figure is to be used.

(2) Entering the proper table at the mileage figure found in paragraph (1) above, find opposite, a selection of powers that may be used for antenna heights ranging from 50 (15 m) to 500 (152 m) feet (AAT). If the exact antenna height proposed for the land mobile base station does not appear in the proper table, use the power figure beneath the next greater antenna height.

(3) The lowest power found using the tables mentioned in (1) and (2) above is the maximum power that may be employed by the proposed land mobile base station.

(4) In determining the average elevation of the terrain, the elevations between 2 (3 km) and 10 (16 km) miles from the antenna site are employed. Profile graphs shall be drawn for eight radials beginning at the antenna site and extending 10 (17 km) miles. The radials should be drawn for each 45° of azimuth starting with true north. At least one radial should be constructed in the direction of the nearest co-channel and adjacent channel UHF television stations. The profile graph for each radial shall be plotted by contour intervals of from 40 (12 m) to 100 (30 m) feet and, where the data permits, at least 50 points of elevation (generally uniformly spaced) should be used for each radial. For very rugged terrain 200 (61 m) to 400 (122 m) feet contour intervals may be used. Where the terrain is uniform or gently sloping, the smallest contour interval indicated on the topographic chart may be used. The average elevation of the 8-mile distance between 2 (3 km) and 10 (17 km) miles from the antenna site should be determined from the profile graph for each radial. This may be obtained by averaging a large number of equally spaced points, by using a planimeter, or by obtaining the median elevation (that exceeded by 50 percent of the distance) in sectors and averaging those values. In the preparation of the profile graphs the elevation or contour intervals shall be taken from U.S. Geological Survey Topographic Quadrangle Maps, U.S. Army Corps of Engineers Maps, or Tennessee Valley Authority Maps (Scale 1:24000) whichever is the latest. If such maps are not published for the area in question, the next best topographic information should be used.

(5) Applicants for base stations in the Miami, Fla., urbanized area may, in lieu of calculating the height of average terrain, use 10 feet (3 m) as the average terrain height.

TABLE A.—*Base Station—Cochannel Frequencies (50 dB Protection) Maximum Effective Radiated Power (ERP)* [1]

	Antenna height in feet (AAT)									
	50 (15 m)	100 (30 m)	150 (45 m)	200 (61 m)	250 (76 m)	300 (91 m)	350 (106 m)	400 (122 m)	450 (137 m)	500 (152 m)
Distance in miles: [2]										
162 (260 km)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
160 (257 km)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	800
155 (249 km)	1,000	1,000	1,000	1,000	1,000	875	775	700	625	575
150 (241 km)	1,000	1,000	950	775	725	625	550	500	450	400

TABLE A.—*Base Station—Cochannel Frequencies (50 dB Protection) Maximum Effective Radiated Power (ERP)* [1]

	Antenna height in feet (AAT)									
	50 (15 m)	100 (30 m)	150 (45 m)	200 (61 m)	250 (76 m)	300 (91 m)	350 (106 m)	400 (122 m)	450 (137 m)	500 (152 m)
Distance in miles: [2]										
145 (233 km)	850	750	650	575	500	440	400	350	320	300
140 (225 km)	600	575	475	400	350	300	275	250	230	225
135 (217 km)	450	400	335	300	255	240	200	185	165	150
130 (209 km)	350	300	245	200	185	160	145	125	120	100
125 (201 km)	225	200	170	150	125	110	100	90	80	75
120 (193 km)	175	150	125	105	90	80	70	60	55	50

[1] The effective radiated power (ERP) and antenna height above average terrain (AAT) shall not exceed the values given in this table.

[2] At this distance from transmitter site of protected UHF television station.

TABLE B.—*Base Station—Cochannel Frequencies (40 dB Protection) Maximum Effective Radiation Power (ERP)* [1]

	Antenna height in feet (AAT)									
	50 (15 m)	100 (30 m)	150 (45 m)	200 (61 m)	250 (76 m)	300 (91 m)	350 (106 m)	400 (122 m)	450 (137 m)	500 (152 m)
Distance in miles: [2]										
130 (209 km)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
125 (201 km)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	850	750	725
120 (193 km)	1,000	1,000	1,000	1,000	900	750	675	600	550	500
115 (185 km)	1,000	1,000	800	725	600	525	475	425	375	350
110 (177 km)	850	700	600	500	425	375	325	300	275	225
105 (169 km)	600	475	400	325	275	250	225	200	175	150
100 (161 km)	400	325	275	225	175	150	140	125	110	100
95 (153 km)	275	225	175	125	110	95	80	70	60	50
90 (145 km)	175	125	100	75	50					

[1] The effective radiated power (ERP) and antenna height above average terrain (AAT) shall not exceed the values given in this table.

[2] At this distance from transmitter site of protected UHF television station.

TABLE C.—*Mobile and Control Station—Distance Between Associated Base Station and Protected Cochannel TV Station*

[50 dB protection]

	Distance	
	Miles	Kilometers
Effective radiated power (watts) of mobile unit and control station:		
200	155	249
150	151	243
100	145	233
50	135	217
25	125	201
10	117	188
5	112	180

TABLE D.—*Mobile and Control Station—Distance in Miles Between Associated Land Mobile Base Station and Protected Cochannel TV Station*

[40 dB protection]

	Distance	
	Miles	Kilometers
Effective radiated power (watts) of mobile unit and control station:		
200	130	209
150	125	201
100	120	193
50	115	185
25	110	177
10	105	169
5	100	161

TABLE E.—*Base Station Adjacent Channel Frequencies Maximum Effective Radiated Power (ERP)* [1]

	Antenna height in feet (AAT)									
	50 (15 m)	100 (30 m)	150 (45 m)	200 (61 m)	250 (76 m)	300 (91 m)	350 (106 m)	400 (122 m)	450 (137 m)	500 (152 m)
Distance in miles: [2] [3]										
67 (108 km)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
66 (106 km)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	750
65 (104 km)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	825	650	600
64 (103 km)	1,000	1,000	1,000	1,000	1,000	1,000	775	625	500	400
63 (101 km)	1,000	1,000	1,000	1,000	1,000	650	450	325	325	225
62 (99 km)	1,000	1,000	1,000	1,000	525	375	250	200	150	125
61 (98 km)	1,000	1,000	700	450	250	200	125	100	75	50
60 (96 km)	1,000	1,000	425	225	125	100	75	50		

[1] The effective radiated power (ERP) and antenna height above average terrain (AAT) shall not exceed the values given in this table.

[2] At this distance from transmitter site of protected UHF television station.

[3] The minimum distance is 90 miles (145 km) where there are mobile units associated with the base station. See sec. 90.307(d).

TABLE "F"

DECIBEL REDUCTION/POWER EQUIVALENTS

dB reduction below 1 kW:	*ERP permitted (figures rounded)*
1	795
2	630
3	500
4	400
5	315
6	250
7	200
8	160
9	125
10	100
11	80
12	65
13	50
14	40
15	30
16	25
17	20
18	15
19	12
20	10
21	8
22	6
23	5
24	4
25	3
26	2.5
27	2
28	1.5
29	1.25
30	1

(b) *Directions for Using the Figures.*

(1) Determine antenna height above average terrain. (According to 90.309(a)(4).)

(2) Locate this value on the antenna height axis.

(3) Determine the separation between the LM antenna site and the nearest protected co-channel TV station. (According to 73.611.)

(4) Draw a vertical line to intersect the LM/TV separation curve at the distance determined in step 3 above. For distances not shown in the graph use linear interpolation.

(5) From the intersection of the LM/TV separation curve draw a horizontal line to the power reduction scale.

(6) The power reduction in dB determines the reduction below 1 kW that must be achieved.

(7) See Table F for dB/power equivalents.

§ 90.311 Frequencies.

Except as provided for in § 90.315, the following frequencies in the band 470–512 MHz may be assigned to eligibles in the services as indicated below. The first and last assignable frequencies are shown. Assignable frequencies occur in increments of 25 kHz. The separation between base and mobile transmit frequencies is 3 MHz for two frequency operations.

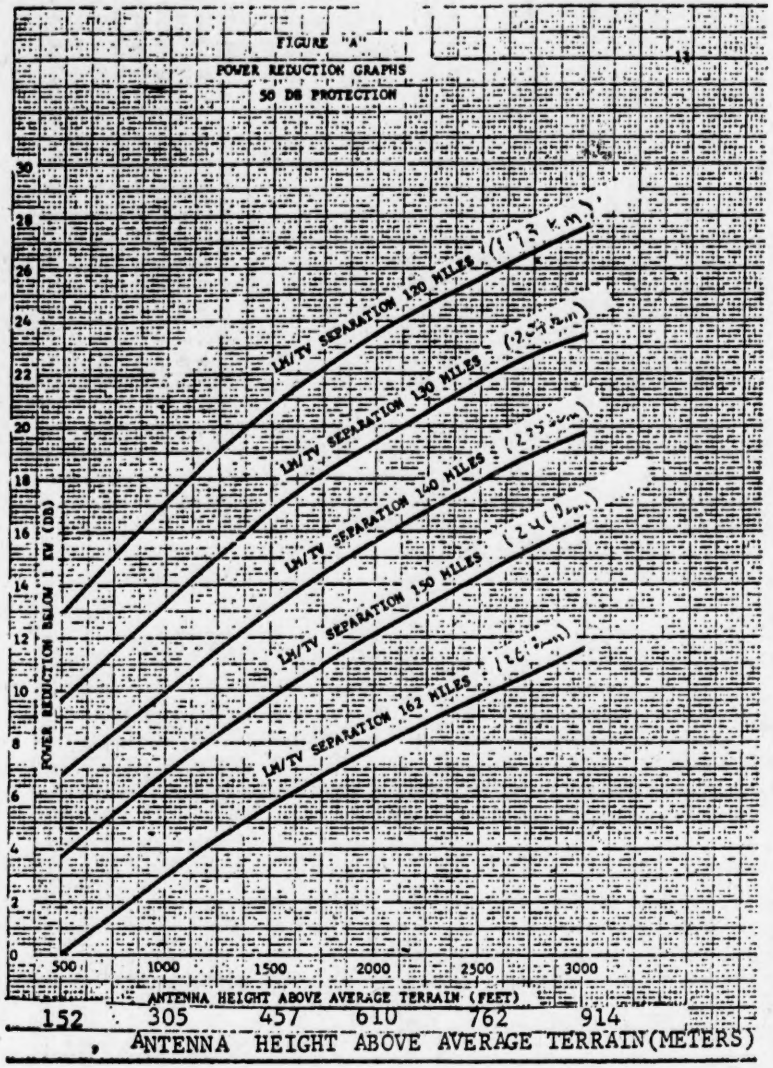


FIGURE "A"
POWER REDUCTION GRAPHS
50 DB PROTECTION
LW/TV SEPARATION 120 MILES (193 Km)
LW/TV SEPARATION 130 MILES (209 Km)
LW/TV SEPARATION 140 MILES (225 Km)
LW/TV SEPARATION 150 MILES (241 Km)
LW/TV SEPARATION 162 MILES (261 Km)
POWER REDUCTION BELOW 1 KV (DB)
ANTENNA HEIGHT ABOVE AVERAGE TERRAIN (FEET)
500 1000 1500 2000 2500 3000
152 305 457 610 762 914
ANTENNA HEIGHT ABOVE AVERAGE TERRAIN (METERS)

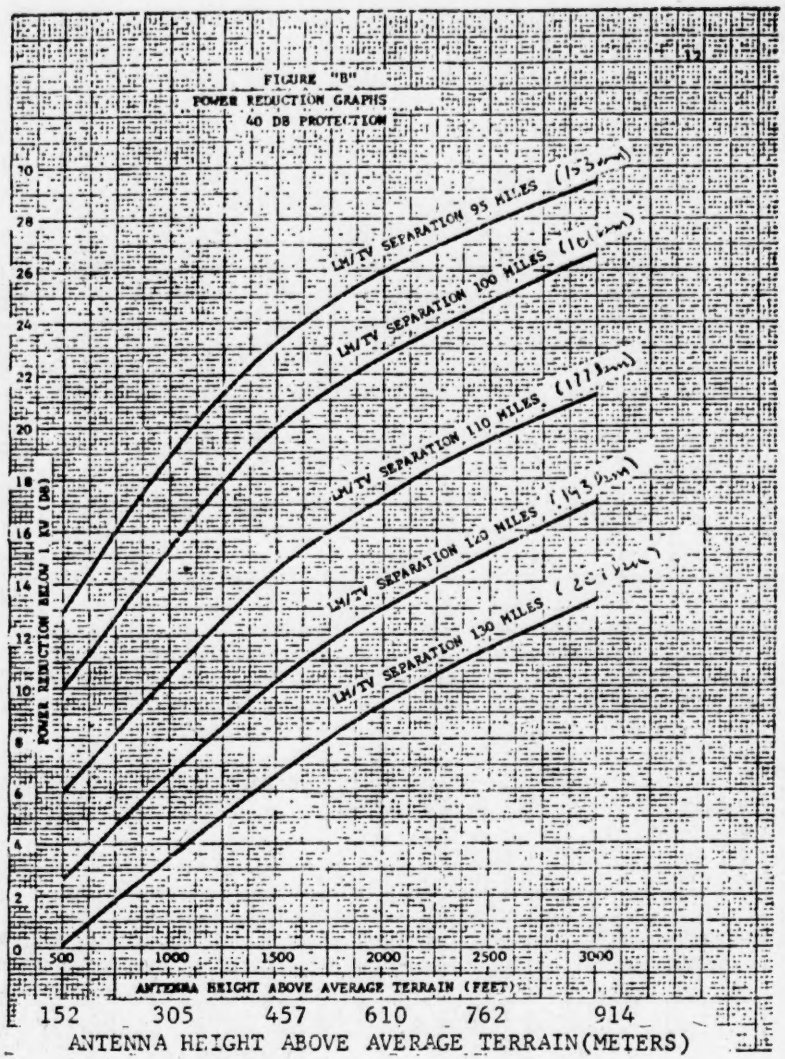


FIGURE "B"
POWER REDUCTION GRAPHS
40 DB PROTECTION
LW/TV SEPARATION 95 MILES (153 Km)
LW/TV SEPARATION 100 MILES (161 Km)
LW/TV SEPARATION 110 MILES (177 Km)
LW/TV SEPARATION 120 MILES (193 Km)
LW/TV SEPARATION 130 MILES (209 Km)
POWER REDUCTION BELOW 1 KV (DB)
ANTENNA HEIGHT ABOVE AVERAGE TERRAIN (FEET)
500 1000 1500 2000 2500 3000
152 305 457 610 762 914
ANTENNA HEIGHT ABOVE AVERAGE TERRAIN (METERS)

FREQUENCIES ASSIGNED IN SERVICE POOLS

Urbanized area (channel assignment)	Public safety pool		Industrial pools								Land transportation pools					
	Fire, police, local government, highway maintenance and forestry conservation radio service		Power and telephone maintenance radio service		Special industrial radio service		Business radio service		Petroleum, forest products and manufacturers radio service		Railroad, motor carrier and automobile emergency radio service		Taxicab radio service		General access pool	
	Base and mobile	Mobile	Base and mobile	Mobile	Base and mobile	Mobile	Base and mobile	Mobile	Base and mobile	Mobile	Base and mobile	Mobile	Base and mobile	Mobile	Base and mobile	Mobile
Boston:																
Channel 14	470.3125 to 471.1375	473.3125 to 474.1375	471.3125 to 471.3875	474.3125 to 474.3875	471.4625 & 471.4875	474.4625 & 474.4875	471.8125 to 472.0625 & 472.1125 to 472.2125 & 472.2625	474.4625 to 475.0625 & 475.1125 to 475.2125 & 475.2625	None		472.4625 to 472.5375 & 472.5875 to 472.6875 & 472.7375 472.7875	475.4625 to 475.5375 & 475.5875 to 475.6875 & 475.7375 475.7875	472.3625 to 472.4375	475.3625 to 475.4375	470.3125 to 472.9875	473.3125 to 475.9875
Channel 16	482.3125 to 483.1375	485.3125 to 486.1375	None		483.4875 to 484.3375	486.4875 to 487.3375	None		None		None		None		482.3125 to 484.9875	485.3125 to 487.9875
Chicago:																
Channel 14	470.3125 to 471.1375	473.3125 to 474.1375	None		471.4375 to 471.6375	474.4375 to 474.6375	471.8125 to 472.3375 & 472.6375 to 472.7875 & 472.9125 472.9625 472.9875	474.8125 to 475.3375 & 475.6375 to 475.7875 & 475.9125 475.9625 475.9875	472.8125	475.8125	472.4625 to 472.6125 & 472.9375	475.4625 to 475.6125 & 475.9375	None		470.3125 to 472.9875	473.3125 to 475.9875
Channel 15	None		None		None		None		None		None		None		476.3125 to 478.9875	479.3125 to 481.9875
Cleveland:																
Channel 14	None		None		None		None		None		None		None		470.3125 to 472.9875	473.3125 to 481.9875
Channel 15	None		None		None		None		None		None		None		476.3125 to 478.9875	479.3125 to 475.9875
Detroit:																
Channel 15	None		None		None		None		None		None		None		476.3125 to 478.9875	479.3125 to 481.9875
Channel 16	None		None		None		None		None		None		None		482.3125	485.3125

FREQUENCIES ASSIGNED IN SERVICE POOLS

Urbanized area (channel assignment)	Public safety pool		Industrial pools								Land transportation pools					
	Fire, police, local government, highway maintenance and forestry conservation radio service		Power and telephone maintenance radio service		Special industrial radio service		Business radio service		Petroleum, forest products and manufacturers radio service		Railroad, motor carrier and automobile emergency radio service		Taxicab radio service		General access pool	
	Base and mobile	Mobile	Base and mobile	Mobile	Base and mobile	Mobile	Base and mobile	Mobile	Base and mobile	Mobile	Base and mobile	Mobile	Base and mobile	Mobile	Base and mobile	Mobile
Los Angeles:																
Channel 14	470.3125 to 471.1375	473.3125 to 474.1375	473.3125 & 471.4125	474.3125 & 474.4125	471.4375 to 471.6375	474.4375 to 474.6375	471.1625 to 471.2875 471.6625 to 472.4375	474.1625 to 474.2875 474.6625 to 475.4375	472.8375 & 472.8875	475.8375 & 475.8875	472.4625 to 472.7875	475.4625 to 475.7875	472.9875	475.9875	470.3125 to 472.9875	473.3125 to 475.9675
Channel 20	506.3125 to 507.2625	509.3125 to 510.2625	507.3125 & 507.4125	510.3125 & 510.4125	507.4375 to 507.6375	510.4375 to 510.6375	507.6625 to 508.4375 & 507.2875	510.6625 to 511.4375 & 510.2875	508.8125 & 508.8875	511.8125 & 511.8875	508.4625 to 508.7875	511.4625 to 511.7875	508.9125	511.9125	506.3125 to 508.9875	509.3125 to 511.9675
New York:																
Channel 14	470.3125 to 471.4125	473.3125 to 474.4125	472.9625 & 472.9875	475.9625 & 481.9875	471.4375 to 471.6375	474.4375 to 474.6375	471.6625 to 472.3375 & 472.7625 to 472.8875	474.6625 to 475.3375 & 475.7625 to 475.8875	None		472.4625 to 472.6125	511.4625 to 475.6125	472.3625 to 472.4375 & 472.6375 to 472.6625 472.7375 472.6875	475.3625 to 475.4375 & 475.6375 to 475.6625 475.7375 475.6875	470.3125 to 472.9875	473.3125 to 475.9875
Channel 15	476.3125 to 477.4125	479.3125 to 480.4125	478.9625 & 478.9875	481.9625 & 481.9875	477.4375 to 477.6375	480.4375 to 480.6375	477.6625 to 478.3375 & 478.7625 478.8875	480.6625 to 481.3375 & 481.7625 481.8875	None		478.5125 to 478.4875 & 478.6875	481.5125 to 481.4875 & 481.6875	478.3625 to 478.6625	481.5125 to 481.6625	476.3125 to 478.9875	479.3125 to 481.9875
Philadelphia:																
Channel 19	500.3125 to 500.4375 & 500.5625 & 500.6625 & 500.6875 500.7375 & 500.7875 to 500.9125 500.9625 500.9875 & 501.0625 & 501.1125 501.1375	503.3125 to 503.4375 & 503.5625 & 503.6625 & 503.6875 503.7375 & 503.7875 to 503.9125 503.9625 503.9875 & 504.0625 & 504.1125 504.1375	None		501.4375 to 501.4875 & 501.5375 501.6125	504.4375 to 504.4875 & 504.5375 504.6125	501.8125 to 502.3375	504.8125 to 505.3375	None		502.4625 to 502.7875	505.4625 to 505.7875	None		500.3125 to 502.9875	503.3125 to 505.9875

| | | |

(1) Channel availability in the General Access Pool in any of the urbanized areas referred to in the table depends upon whether that channel is presently assigned to users in one of the service pools. If unassigned, or should a channel subsequently become unassigned, it will be treated as available in the General Access Pool.

(2) Frequencies in the General Access Pool will be made available to applicants after all channels presently assigned are substantially loaded in accordance with the standards set out in 90.313 of this section. Channels from the General Access Pool will be assigned starting with the lowest frequency available at the time and progress towards the high end of the General Access Pool. Normally, each channel should be substantially filled before the next one will be assigned.

(b) Miami, Fla., Dallas, Tex., and Houston, Tex. urbanized areas.

Channel 14 (Miami)	Channel 16 (Dallas)	Channel 17 (Houston)
470.3125 to 475.9875	482.3125 to 487.9875.	488.3125 to 493.9875.

(1) Base station frequencies for the Public Safety Radio Service will be assigned serially beginning at 470.7125 MHz for Miami, 482.7125 MHz for Dallas, and at 488.7125 MHz for Houston and progressing a channel at a time upward and downward from those points.

(2) Base station frequencies for the Petroleum, Forest Products, and Manufacturers Radio Services will be assigned serially beginning at 470.3125 MHz for Miami, 482.3125 MHz for Dallas, and 488.3125 MHz for Houston and progressing upward from those points a channel at a time.

(3) Base station frequencies for the Special Industrial Radio Service will be assigned serially beginning at 471.4375 MHz for Miami, 483.4375 MHz for Dallas, and 489.4375 MHz for Houston and progressing a channel at a time upward and downward from those points.

(4) Base station frequencies for the Business Radio Service will be assigned serially beginning at 472.3625 MHz for Miami, 484.3625 MHz for Dallas, and 489.3625 MHz for Houston and progressing a channel at a time upward and downward from those points.

(5) Base station frequencies for the Power and Telephone Maintenance Radio Services will be assigned serially beginning at 471.2625 MHz for Miami, 483.2625 MHz for Dallas, and 489.2625 MHz for Houston and progressing a channel at a time upward and downward from those points.

(6) Base station frequencies for the Railroad, Motor Carrier, and Automobile Emergency Radio Services will be assigned serially beginning at 471.7825 MHz for Miami, 483.7825 MHz for Dallas, and 489.7825 MHz for Houston and progressing upward and downward from those points a channel at a time.

(7) Base station frequencies for the Taxicab Radio Service will be assigned serially beginning at 472.9875 MHz for Miami, 484.9875 for Dallas, and 490.9875 MHz for Houston and progressing a channel at a time downward from those points.

§ 90.313 Frequency loading criteria.

(a) Except as provided for in paragraph (b), the maximum channel loading on frequencies in the 470–512 MHz band is as follows:

(1) 50 units in the Public Safety Radio Services.

(2) 70 units in the Industrial Radio Services (except business).

(3) 90 units in the Business Radio Service.

(4) 150 units in the Taxicab Radio Service, except in the New York Northeast New Jersey urbanized areas where the loading is 200 units.

(5) 70 units in the Railroad, Motor Carrier, and Automobile Emergency Radio Services except in the intraurban passenger carrier sub-category of the Motor Carrier Radio Service where the loading is 150 units.

(b) If a licensee has exclusive use of a frequency, then the loading standards in paragraph (a) may be exceeded. If it is a shared channel, the loading standards can be exceeded upon submission of a signed statement by all those sharing the channel agreeing to the increase.

(c) A unit is defined as one vehicular mobile unit or two hand-carried transmitter-receivers for the Public Safety Services, three hand-units for the Industrial, and Land Transportation Services. Loading standards will be applied in terms of the number of units actually in use or to be placed in use within 8 months following authorization. A licensee will be required to show that an assigned frequency pair is at full capacity before it may be assigned a second or additional frequency pair. Channel capacity may be reached either by the requirements of a single licensee or by several users sharing a channel. Until a channel is loaded to capacity it will be available for assignment to other users in the same area. A frequency pair may be reassigned at distances 64 km. (40 mi.), (32 km. (20 mi.) for Channel 15, Chicago: Channel 20, Philadelphia and Channel 17, Washington or more from the location of base stations authorized on that pair without reference to loading at the point of original installation. Following authorization, the licensee shall notify the Commission either during or at the close of the 8 months period of the number of units in operation. In the Industrial Radio Services, if the base station facility is to be used by more than a single licensee, the frequency assigned to it will not be reassigned for use by another facility within 64 km. (40 mi.) or 32 km. (20 mi.) where applicable for a period of 12 months, *Provided*, That the facility is constructed within 90 days from the date of the first grant, meets the loading standards to at least 50 percent within 9 months, and meets all loading standards within 12 months.

§ 90.315 Special provisions governing use of frequencies in the 488–494 MHz band (TV Channel 17) in the Southern Louisiana Offshore Zone.

(a) The frequency bands from 490–491 and 493–494 MHz will be available for assignment to stations governed by this part within the Southern Louisiana Offshore Zone. The boundaries of the Southern Louisiana Offshore Zone are from longitude 87°45′ on the east to longitude 94°00′ on the west, and from the three mile limit along the Gulf of Mexico shoreline on the north to the limit of the Outer Continental Shelf on the south. These frequencies may also be assigned to fixed stations located on shore designed to provide communications service within the zone.

(b) Offshore Base/Mobile, and offshore and shore fixed stations may be authorized.

(c) F2, F3, F4, F9, and A2, A3, A4, and A9 emissions may be authorized.

(d) Offshore stations shall afford cochannel protection to TV Channel 17, Bude, Miss. Station operating parameters shall be in accordance with the values given in Table I.

TABLE 1.—*Protection of Cochannel Television Stations by Offshore Stations Operating in the Southern Louisiana Zone (65 dB Protection); Maximum Effective Radiated Power (in Watts)*

	Antenna height above sea level		
	100 ft	150 ft	200 ft
Distance from transmitter to TV channel 17, Bude, Miss. (in miles):			
210	1,000	1,000	1,000
205	1,000	900	800
200	800	710	630
195	590	520	450
190	450	400	330
185	320	280	240
180	250	210	175
175	175	150	130
170	130	110	100
165	95	80	70
160	65	55	50
155	50	40	35
150	35	30	25

NOTE.—To determine the maximum permissible effective radiated power:

(1) As specified in sec. 73.611 determine the distance between the proposed station and channel 17, Bude, Miss. If the exact mileage does not appear in table 1, the next lower mileage separation is to be used.

(2) Opposite this mileage figure ERPs are given that may be used for antenna heights of 100, 150, or 200 ft ASL. If the exact antenna height is not shown, the ERP allowed will be that shown for the next higher antenna height.

(e) Shore stations communicating point-to-point with offshore stations will be permitted at least the same ERP as the offshore station, but only in the direction of the offshore station. A directional antenna shall be used and the rearward radiated power from the antenna in a sector ±22½° from the line joining the shore antenna to Bude, Miss., shall not exceed those shown in Table 2.

TABLE 2.—*Maximum Rearward Effective Radiated Power Allowed for Shore Stations in the Southern Louisiana Zone; Rearward Effective Radiated Power (in Watts) From Shore Antenna in a Sector ±22½° From the Line Joining the Shore Antenna to Bude, Miss.*

	Antenna height above ground					
	100 ft	150 ft	200 ft	300 ft	500 ft	750 ft
Distance from transmitter to TV channel 17, Bude, Miss. (in miles):						
185	320	280	240	190	125	90
180	250	210	175	125	100	60
175	175	150	130	100	70	50
170	130	110	100	75	40	35
165	95	82	70	50	35	25
160	65	55	50	40	25	20
155	50	40	35	30	20	15
150	35	30	25	20	15	10
145	25	20	18	15	10	7
140	18	15	13	10	7	5
135	13	10	9	7	5	3
130	10	8	6	5	3	2
125	7	6	5	4	3	2
120	5	4	3	3	2	1

NOTE.—As an example of the use of tables 1 and 2, assume an offshore station located 180 mi from Bude, Miss. with an antenna height of 100 ft. Table 1 allows this station to operate with 250 W ERP. Now assume the shore station communicating with the offshore station is 30 mi from the offshore station and 150 mi from Bude, Miss. The shore station antenna height is 500 ft above ground. The shore station will be allowed the same ERP as the offshore station (250 W) in the direction of the offshore station. Table 2 indicates that the effective radiated power in a sector ±22½° from the line joining the shore antenna to Bude, Miss. can only be 15 W. Consequently, a directional antenna must be used whose minimum front-to-back ratio over this 45° sector must be at least 12.2 dB. (250 W forward power to 15 W rearward power is a power ratio of 16.6 or 12.2 dB).

(f) To provide co-channel protection to TV Channel 17, no shore station will be allowed closer than 120 miles from Bude, Miss., coordinates 31°22'19" N and 90°45'05" W.

(g) To provide adjacent channel protection to TV Channel 18 in Lake Charles, Louisiana, no shore or offshore stations shall be allowed within an 80 mile distance of Lake Charles, Louisiana, whose coordinates are 30°13'45' N and 93°12'52" W.

(h) Mobile stations shall not operate closer to shore than 4 miles beyond the three mile limit and and shall not operate with an ERP in excess of 100 watts with 30 ft. maximum antenna height.

(i) Mobile stations installed in aircraft shall operate 7 miles beyond the three mile limit and shall not operate with an ERP in excess of 1 watt or at heights in excess of 1000 feet AMSL.

(j) The following frequencies are available for assignment in all services for use in the Southern Louisiana Zone as defined in paragraph (a) of this section.

PAIRED FREQUENCIES (MHz)

Transmit (or received)	*Receive (or transmit)*
490.025–490.975	493.025–493.975

Only the first and last assignable frequencies are shown. Frequencies shall be assigned in pairs with 3 MHz spacing between transmit and receive frequencies. Assignable frequency pairs shall occur in increments of 25 kHz.

(k) Fixed stations operating point-to-point shall be assigned frequencies beginning with 490.025/493.025 MHz and progressing upwards utilizing available frequencies towards the end of the band. Offshore Base/mobile stations shall be assigned frequencies beginning at 490.975/493.975 MHz and progressing downwards utilizing available frequencies towards the beginning of the band. All frequency assignments are subject to the conditions specified in § 91.8.

(l) Bandwidths other than 25 kHz may be authorized upon an adequate showing of need. An application requesting such authorization shall fully describe the modulation, emission and bandwidth desired, the bandwidth to be occupied, and justification for the request.

Subpart M—Special Regulations Governing Licensing and Use of Frequencies in the 806–821 MHz and 851–866 MHz Bands

§ 90.351 Scope.

This subpart sets out the regulations governing the licensing and operations of conventional and trunked stations authorized in the 806–821 MHz and 851–866 MHz bands. It includes eligibility requirements, application procedures, operational, and technical standards for stations licensed in these bands. The rules in this subpart are to be read in conjunction with the applicable requirements contained elsewhere in this part; however, in case of conflict, the provisions of the subpart shall govern with respect to licensing and operation in these frequency bands.

APPLICATIONS FOR AUTHORIZATIONS IN THE 806–821 MHz AND 851–866 MHz BANDS

§ 90.355 Eligibility.

The following persons are eligible for licensing in the 806–821 MHz and 851–866 MHz bands.

(a) Any person eligible for licensing under Subparts B, C, D, or E of this part.

(b) Any person proposing to provide private dispatch service to any person eligible for licensing under Subpart B, C, D, or E of this part on a not-for-profit, cost-shared basis.

(c) Any person except wire line telephone common carriers proposing to provide, on a commercial basis, base station and ancillary facilities for the use of persons eligible for licensing under Subparts B, C, D, or E of this part.

§ 90.357 Forms to be used.

Applications for conventional and trunked radio facilities shall be submitted on FCC Form 400, and such applications shall be filed with the Commission, at its offices in Washington, D.C. Where the facility is to be established in the Chicago Regional area FCC Form 425 shall be used and all such applications shall be filed with th Chicago Regional Office. In addition, FCC Form 400-S shall be filed by all applicants.

§ 90.359 Supplemental information to be furnished by applicants for facilities under this subpart.

(a) Applicants for conventional or trunked systems of communication shall, in addition to the information required by FCC Form 400 or FCC Form 425 furnish the following data and material:

(1) Where the applicant is a person proposing to provide dispatch service to eligibles under § 90.179 on a not-for-profit, cost-shared basis, he shall furnish:

(i) A copy of the plan or agreement under which service will be offered. It must be in sufficient detail to show that such service will be provided at cost.

(ii) A statement of the purposes for which the system is to be used and of the planned mode of operation.

(iii) The names and addresses of each person to participate in the sharing arrangement.

(iv) A statement showing that each participant is eligible to use the system for the purposes for which it is to be employed.

(2) Where the applicant is a person proposing to provide dispatch service to eligibles under this part on a commercial basis, he shall supply:

(i) A statement of the purposes for which the system is to be used and of the planned mode of operation.

(ii) A statement certifying that no person not eligible to use the proposes facility for the purposed for which it is to be authorized will be offered or provided service over or through the licensee's base station facility.

(iii) A copy of the basic agreement under which the dispatch service will be offered.

(3) Where the applicant is subject to the provisions of § 90.373 he shall furnish the following information:

(i) A list of any trunked stations licensed to the applicant.

(ii) A list of any trunked stations licensed to any other person or entity directly or indirectly controlled by the applicant or which directly or indirectly controls the applicant.

(4) All applicants for conventional radio systems shall furnish a list of all conventional radio systems licensed to them or proposed by them within 64 km. (40 mi.) from the location of the base station transmitter site of the facility applied for.

(b) All applicants for conventional systems shall specify the number of vehicle or portable units to be placed in operation upon grant of the authorization and the number of such units that will be placed in operation within 8 months of the date of grant.

(c) All applicants of trunked systems shall specify the number of mobile units to be placed in operation within the term of the license; *Provided, however,* Where the applicant applies for more than the minimum 5 channels, and elects to construct in 5-channel stages, he shall so specify and shall state the number of mobile units to be placed in operation by the end of two years from the date of the grant of his station authorization.

(d) Each applicant shall furnish a functional system diagram illustrating the inter-relationship of all stations being applied for, together with technical details (including antenna height (AAT) and effective radiated power (ERP)), together with his proposed area of coverage and the signaling methods he will employ.

§ 90.361 Special limitations on amendment of applications for assignment or transfer of authorizations for radio systems used to provide service to persons other than the licensee.

(a) No application for a conventional or trunked radio system proposing radio facilities to be made available for use by a single user or by multiple users on a commercial basis may be amended so as to substitute a new entity except in the following circumstances:

(1) The amendment does not involve a substantial change in the ownership or control of the applicant; or

(2) The changes in the ownership or control of the applicant are involuntary due to the original applicant's insolvency, bankruptcy, incapacity, or death.

(b) A license to operate a radio facility for the purposes described in paragraph (a) of this section may not be assigned or transferred prior to the completion of construction of the facility; *Provided, however,* The Commission may give its consent to the assignment or transfer of control of such a license where the applicant shows:

(1) That the assignment or transfer does not involve a substantial change in ownership or control of the authorized radio facilities; or,

(2) That the assignment or transfer is involuntary due to the licensee's insolvency, bankruptcy, incapacity, or death.

POLICIES GOVERNING THE PROCESSING OF APPLICATIONS AND THE SELECTION AND ASSIGNMENT OF FREQUENCIES FOR USE IN THE 806-821 MHz AND 851-866 MHz BANDS

§ 90.363 Processing of applications.

Applications for facilities to operate in the 806-821 MHz and 851-866 MHz bands will be processed as follows:

(a) All applications will first be considered to determine whether they are substantially complete and acceptable for filing. If so, they will be assigned a file number and put in pending status. If not, they will be returned to the applicant.

(b) All applications in pending status will be processed in the order in which they are received. The order in which they are received will be determined by the time and date on which the original proposal was filed with the Commission.

(c) Each application will then be reviewed to determine whether it can be granted. Should it be granted, frequencies or channels will be assigned by the Commission in accordance with its assignment policies and loading criteria.

(d) Where, upon examination, it is determined that the proposal must be dismissed, that application will be returned; and the priority accorded it will no longer obtain.

(e) Where, upon examination, it is determined that the proposal cannot be granted or dismissed, but that it must be designated for hearing, such action will be taken.

§ 90.365 Selection and assignment of frequencies.

(a) The Commission will select and assign frequencies for operation in the 806-821 MHz and 851-866 MHz bands.

(1) For trunked systems, the assignment of frequencies will be made, in accordance with applicable loading criteria, in minimum groups of five and in maximum groups of twenty channel pairs. All mobile and control station frequencies will be chosen from those allocated in the 806-821 MHz band. Mobile station transmitting frequencies will commence with Channel No. 1 at 820.9875 MHz, followed by Channel No. 2 at 820.9625 MHz, and proceed to the band end with uniform 25 kHz channeling; and base station transmitting frequencies will be selected by the Commission and assigned from those allocated in the 851-866 MHz band, commencing with Channel No. 1 at 865.9875 MHz, followed by Channel No. 2 at 865.9625 MHz, and proceed to the band end with uniform 25 kHz channeling. The spacing between associated mobile and base station frequencies shall be, uniformly, 45 MHz.

(2) For conventional systems the assignment of frequencies will be made in accordance with applicable loading criteria. Accordingly, depending upon the number of mobile units to be served, the applicant may either be required to share a channel, or, if the applicant shows a sufficient number of mobile units to warrant the assignment of one or more channels for its exclusive use, he may be licensed to use such channel or channels on an exclusive basis in his area of operation.

(3) For conventional systems, mobile station transmitting frequencies, as well as those for use by control sta-

tions, will be selected from those allocated in the 806–821 MHz band. Mobile and control station transmitting frequencies will commence with Channel No. 1 at 806.0125 MHz, followed by Channel No. 2 at 806.0375 MHz, and proceed to the band end with uniform 25 kHz channeling. Base station transmitting frequencies will be selected and assigned from those allocated in the 851–866 MHz band, with Channel No. 1 commencing at 851.0125 MHz, followed by Channel No. 2 at 851.0375 MHz, and proceed to the band end with uniform 25 kHz channeling. The spacing between associated mobile and base station frequencies shall be, uniformly, 45 MHz.

(b) Stations authorized by the Commission to operate in the 806–821 and 851–866 MHz band will be afforded protection solely on the basis of the mileage separation criteria set out below. Only co-channel interference between base station operations will be taken into consideration. Adjacent channel and other types of possible interference will not be taken into account.

(1) For trunked systems, the minimum separation between co-channel systems must be 112 km. (70 mi.) except that no trunked system shall be less than 168 km. (105 mi.) distant from co-channel wide area trunked systems on any of the following mountian top sites: Santiago Peak, Sierra Peak, Mount Lukens, Mount Wilson (California).

(2) For urban-conventional systems, co-channel base stations will be authorized only when the separation between the centers of the urban areas involved is at least 160 km. (100 mi.).

(3) For suburban-conventional systems, co-channel base stations will be authorized only when the separation between the centers of the suburban loading areas involved is at least 176 km. (110 mi.)

(4) For a suburban conventional system to operate co-channel with an urban conventional system, the distance between the center of the urban area and the center of the suburban loading area must be at least 176 km. (110 mi.).

(5) The minimum distance from any of the following four sites: Santiago Peak, Sierra Peak, Mount Lukens, and Mount Wilson (California) to the center of the nearest co-channel "urban" area, must be 192 km. (120 mi.) and to the center of the nearest co-channel suburban loading area (for a suburban-conventional station), must be 208 km. (130 mi.).

(c) Notwithstanding the provisions of paragraph (b)(2) of this section, where an assigned channel of an urban-conventional system is not fully loaded in accordance with applicable loading criteria, and where the transmitter site of that system is located within 24 km. (15 mi.) from the center of the urbanized area involved, the Commission may issue additional authorizations for facilities to be located within 24 km. (15 mi.) of the center of that urbanized area until the channel in question is occupied in conformity with applicable loading criteria.

(d) Notwithstanding the provisions of paragraph (b)(3) of this section, where an assigned channel of a suburban-conventional system is not fully loaded in accordance with applicable loading criteria, the Commission may issue additional authorizations for facilities to be located within 40 km. (25 mi.) of the transmitter site of the first station authorized until the channel in question is occupied in conformity with applicable loading criteria.

(e) Notwithstanding the provisions of paragraph (b)(5) of this section, where a channel is assigned for use at either Santiago Peak, Sierra Peak, Mount Lukens, or Mount Wilson (California) and the channel is not fully loaded in accordance with applicable loading criteria, the Commission may issue additional authorizations for wide-area-coverage facilities to be located at the same site area until the channel in question is occupied in conformity with applicable loading criteria. A channel previously assigned at one such site area may not be used at any of the three remaining designated mountain-top sites.

(f) UHF television translator stations using UHF output channels from Channel 70 through Channel 83, shall operate on a secondary basis to land mobile stations using the UHF bands allocated under this subpart for land mobile use, and, accordingly, such television translator stations will not be protected from interference from such authorized land mobile stations.

(g) Pending further negotiations with Canada and Mexico, land mobile stations operating in the 806–890 MHz band shall do so on a secondary basis to any Canadian or Mexican television station placed in operation on television channels in this band.

(h) See table below:

TABLE 1.—*Urbanized Areas*

Urbanized area	Geographic center	
	North latitude	West longitude
Akron, Ohio	41°05'00"	81°30'44"
Albany-Schenectady-Troy, N.Y	42°39'01"	73°45'01"
Atlanta, Ga	33°45'10"	84°23'37"
Baltimore, Md	39°17'26"	76°36'45"
Birmingham, Ala	33°31'01"	86°48'36"
Boston, Mass	42°21'24"	71°03'24"
Buffalo, N.Y	42°53'12"	78°52'30"
Chicago, Ill	45°52'28"	87°38'22"
Cincinnati, Ohio	39°06'07"	84°30'35"
Cleveland, Ohio	41°29'51"	81°41'50"
Columbus, Ohio	39°57'47"	83°00'17"
Dallas, Tex	32°47'09"	96°47'37"
Dayton, Ohio	39°45'32"	84°11'43"
Denver, Colo	39°44'58"	104°59'22"
Detroit, Mich	42°19'48"	83°02'57"
Fort Lauderdale-Hollywood, Fla	26°07'30"	80°09'00"
Fort Worth, Tex	32°44'55"	97°19'44"
Houston, Tex	29°45'26"	95°21'37"
Indianapolis, Ind	39°46'07"	86°09'46"
Jacksonville, Fla	30°19'44"	81°39'42"
Kansas City, Mo.-Kans	39°04'56"	94°35'20"
Los Angeles, Calif	34°03'15"	118°14'28"
Louisville, Ky.-Ind	38°14'47"	85°45'49"
Miami, Fla	25°46'37"	80°11'32"
Memphis, Tenn.-Mississippi	35°08'46"	90°03'13"
Milwaukee, Wis	43°02'19"	87°54'15"
Minneapolis-St. Paul, Minn	44°58'57"	93°15'43"
New Orleans, La	29°56'53"	90°04'10"
New York-northeastern New Jersey	40°45'06"	73°50'39"
Norfolk-Portsmouth, Va	36°51'10"	76°17'21"
Oklahoma City, Okla	35°28'26"	97°31'04"
Omaha, Nebr.-Iowa	41°15'42"	95°56'14"
Philadelphia, Pa.-New Jersey	39°56'58"	75°09'21"
Phoenix, Ariz	33°27'12"	112°04'28"
Pittsburgh, Pa	40°26'19"	80°00'00"
Portland, Oreg.-Wash	45°31'06"	122°40'35"
Providence-Pawtucket-Warwick, R.I.-Mass	41°49'32"	71°24'41"
Rochester, N.Y	43°09'41"	77°36'21"
Sacramento, Calif	38°34'57"	121°29'41"
St. Louis, Mo.-Ill	38°37'45"	90°12'22"
St. Petersburg, Fla	27°46'18"	82°38'19"
San Antonio, Tex	29°25'37"	98°29'06"
San Bernardino-Riverside, Calif	34°06'30"	117°17'28"
San Diego, Calif	32°42'53"	117°09'21"
San Francisco-Oakland, Calif	37°46'39"	122°24'40"
San Jose, Calif	37°20'16"	121°53'24"
Seattle, Wash	47°36'32"	122°20'12"
Springfield-Chicopee-Holyoke, Mass.-Conn	42°06'21"	72°35'32"
Toledo, Ohio-Mich	41°39'14"	83°32'39"
Washington, D.C.-Maryland-Virginia	38°53'51"	77°00'33"

§ 90.367 Limitation on the number of frequencies assignable for conventional systems.

(a) The maximum number of frequency pairs that may be assigned to any one licensee for the operation of a conventional radio system shall be five, except for licensees in the Taxicab Radio Service.

(b) Where an applicant proposes to operate a conventional radio system to provide facilities for the use to a single person or entity eligible under Subparts B, C, D, or E of this part, he may be assigned only the number of frequency pairs justified on the basis of the requirements of the proposed user of the system.

(c) No more than five frequency pairs may be assigned to any person proposing to operate one or more conventional radio systems to provide facilities for use by more than a single entity, if there is any overlap of the 40 dBu contour of the proposed new facility and any of the 40 dBu contours

of any station authorized to that person, or to any person or entity in which he has a direct or indirect interest.

NOTE.—For the purposes of this subsection, the 40 dBu contour is assumed to be that obtained using maximum effective radiated power and antenna height permitted by this subpart.

§ 90.369 Other criteria to be applied in assigning channels for use in conventional systems of communication.

(a) In every case, the Commission will examine a proposal to determine the requirements of the applicant in terms of the number of mobile units to be served, together with the nature of the activities the applicant is engaged in. Where the applicant shows that the channel will be loaded to 70 percent of its assigned capacity, as defined in § 90.377 then that channel will be made available to that applicant for his exclusive use in the area in which he proposes to operate. Where the showing made justifies the assignment of more than one channel to the applicant, then additional frequencies will be made available for his use.

(b) Where an applicant proposes to furnish service to eligibles under Subparts B, C, D, or E of this part on a commercial basis, using a conventional system of communication, his application will be considered on the same basis as that of an applicant for private or shared communication facilities.

(c) In loading channels, the Commission will further consider the mode of operation planned; the purposes for which the system is to be used, as noted; the persons to be served by the station and other factors. The other factors shall include the following:

(1) Mobile relay or repeater operations will not be assigned on channels to be used in two-frequency simplex mode, and conversely.

(2) Systems employing full duplex mode of operation will not be licensed on frequencies assigned for mobile relay or two-frequency simplex systems.

(3) Applicants in one service group, where possible, will not be required to share with applicants in other service groups, where the loading criteria of the services involved are different, except where circumstances require it.

(4) Push-to-talk operations will not be licensed on channels which are to be used under other modes of operation, except in those cases where it is shown that such method of operation is feasible.

(d) The Commission, in addition to the foregoing standards, set out at paragraph (c) of this section, may take into consideration any other factor which might enable the persons licensed to use a given channel or channels in more efficient and effective ways.

(e) There shall be no limit on the number of systems authorized to operate in any one given area except that imposed by allocation limitations; and no person authorized to operate any radio facility under the provisions of this subpart shall have a right to protest proposals on grounds other than violation of or inconsistency with the provisions of this subpart. All grants are made subject to this condition and to the other conditions and standards set out in this chapter.

(f) No applicant shall be required to obtain any approval from a state or local regulatory authority to operate facilities authorized pursuant to these rules. State or local regulation may be exercised only to the extent that it does not limit competition or otherwise conflict with these rules. There shall be no limit on the number of systems authorized to operate in any one given area except that imposed by allocation limitations; and no person authorized to operate any radio facility under the provisions of this subpart shall have a right to protest proposals on grounds other than violation of or inconsistency with the provisions of this subpart. All grants are made subject to this condition and to the other conditions and standards set out in this subpart.

§ 90.371 Limitation on the number of frequency pairs assignable for trunked systems and on the number of trunked systems.

(a) The maximum number of frequency pairs that may be assigned for the operation of a trunked radio system shall be twenty. The minimum number of frequencies that may be assigned for the operation of such a system shall be five.

(b) No more than a single trunked system will be authorized to any one licensee to provide radio facilities for the use of more than a single person or entity where the 40 dBu contour of the proposed facility will overlap the 40 dBu contour of any existing facility of the licensee, or of any concern in which he has a direct or indirect interest, or for which applications are pending, except where the applicant shows:

(1) That the additional trunked system will be used to provide radio facilities for a single entity, where the additional system is justified on the basis of the requirements of the proposed single user; or,

(2) That radio systems previously authorized to the applicant are being operated to at least 90 percent of their authorized capacity.

NOTE.—For the purposes of this paragraph, the 40 dBu contour is assumed to be that obtained using maximum effective radiated power and antenna height permitted by this chapter.

§ 90.373 Restriction on licensing manufacturers in the 806–821 MHz and 851–866 MHz bands.

No person engaged in the manufacture or production of radio frequency ("RF") equipment to be used in systems authorized under this subpart, or any person directly or indirectly controlled (through stock ownership or otherwise) by such manufacturing entity, may be licensed to operate more than one trunked system of communication to be used in providing base station and ancillary facilities to eligibles under Subpart B, C, D or E of this part.

CHANNEL LOADING REQUIREMENTS FOR TRUNKED AND CONVENTIONAL SYSTEMS OPERATING IN THE 806–821 AND 851–866 MHz BANDS

§ 90.375 Trunked systems loading requirements.

(a) Trunked systems of communication will be authorized on the basis of the loading criteria set out in this section.

(b) See table below:

TABLE 1.—*Loading Requirements for Trunked Systems*

Service group [1]	Vehicular radio units [2]		
	5-channel systems	10-channel systems	20-channel systems
Police and fire group	300	750	1,500
Business radio group [3]	500	1,000	2,000
Motor carrier group (urban and interurban passenger motor carriers only)	800	1,600	2,500
Other services group [3]	400	800	1,600
Mixed service group	500	1,000	2,000

[1] No provision is made for use for trunked systems by persons eligible in the taxicab radio service, since this mode of communication is not compatible with normal transmission requirements of taxicab companies.

[2] For loading trunked systems of communication, no distinction is made between vehicular and portable mobile units.

[3] When the primary activity of the licensee is the operation of urban or interurban passenger motor carriers, the loading requirements shall be as shown for the motor carrier group.

(c) Each applicant for trunked facilities shall certify that a minimum of 70 percent of the mobile units specified in his application will be placed in operation not later than the date on which the term of his license for the system expires.

(d) Any licensee, at any time his authorized trunked system is occupied to 90 percent of its specified capacity, may apply for additional channels. Assignments will be made based, first, upon the availability of frequencies for use by the licensee; and, second, based upon the showing made by the licensee of its requirements for additional channel pairs.

(e) Licensees of trunked facilities must commence construction within six months from the date of grant and complete construction within one year; *Provided, however,* That a licensee of a "trunked" facility assigned more than the minimum five-channel group may elect to construct the facility in stages. In this event, the licensee shall complete construction of the basic five-channel group of the authorized facility within the time limits given above; *Provided, further,* That should the licensee elect to proceed in this manner, then he must demonstrate that at the end of a two-year period from the date of the grant of his station authorization, the constructed facility is occupied to a minimum of 70 percent of the loading required, notwithstanding the provisions of paragraph (c) of this section.

§ 90.377 Conventional systems loading requirements.

(a) Conventional systems of communication will be authorized on the basis of the loading criteria set out in this section.

(b) See table below:

TABLE 1.—*Loading Requirements for Conventional Systems*

Service group	Channel loading units per channel vehicular/portable		
	Single/licensee	2 to 5 licensees	Over 5 licensees
Police and fire group	50/100	40/80	30/60
Business radio group	90/180	70/140	50/100
Taxicab radio group [1]	150	125	100
Motor carrier radio group (urban and interurban passenger motor carriers, only)	150/300	125/250	100/200
Other services group [2]	70/140	50/100	40/60
Mixed service group		70/140	50/100

[1] No loading criteria for portable units in the taxicab radio group are given, since the requirements for units of this type has not been established in that service.

[2] Where the primary activity of the licensee is the operation of urban or interurban passenger motor carriers, the loadtng requirements shall be as shown for the motor carrier group.

(c) Every applicant for a conventional system of communication shall certify that a minimum of 70 percent of the mobile units specified in his application will be placed in operation not later than 8 months after the date of grant of his license for the system.

(d) Where licensees, authorized under the provisions of paragraph (c) of this section, do not load the channel or channels assigned in accordance with specified loading criteria, any (assigned channel) not so occupied shall be available for assignment to other applicants. All authorizations for conventional systems are issued subject to this condition.

(e) Any licensee, at any time its authorized conventional system is occupied to 90 percent of its specified capacity, may apply for additional channel pairs. Assignments will be made based, first, upon the availability of frequencies for use by the licensee, and, second, based upon the showing made by the licensee of its requirements for additional channel pairs.

TECHNICAL REGULATIONS REGARDING THE USE OF FREQUENCIES IN THE 806-821 MHz AND 851-866 MHz BANDS

§ 90.379 Limitations on power and antenna height.

(a) The maximum effective radiated power and antenna height, respectively, for base stations used in suburban-conventional systems of communication operating in the 851-866 MHz band shall be no greater than 500 watts (27 dBw) and 152 m. (500 ft.) above average terrain (AAT), or the equivalent thereof determined from table 1 of paragraph (c) of this section. These are maximum values, and applicants will be required to justify power levels and antenna heights requested. For service area requirements less than 32 km. (20 mi.) in radius, see table 3 of paragraph (c) of this section.

(b) The maximum effective radiated power and antenna height, respectively, for base stations used in trunked and urban conventional systems authorized in the 851-866 MHz band shall be no greater than 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), or the equivalent thereof determined from table 1 of paragraph (c) of this section. These are maximum values, and applicants will be required to justify power levels and antenna heights requested. For service area requirements less than 32 km. (20 mi.) in radius, see table 3 of paragraph (c) of this section.

(c) See table below:

TABLE 1.—*Equivalent Powers and Antenna Heights for Base Stations in the 851-866 MHz Band Which Have a Requirement for a 32 km (20 mi) Service Area Radius*

Antenna height (AAT) (feet) (meters)	Effective radiated power (watts) [1] [2]	
	Urban/trunked	Suburban
Above 5,000	65	15
4,501 to 5,000	65	15
4,001 to 4,500	70	20
3,501 to 4,000	75	25
3,001 to 3,500	100	30
2,501 to 3,000	140	35
2,001 to 2,500	200	50
1,501 to 2,000	350	80
1,001 to 1,500	600	160
501 to 1,000	[3] 1,000	220
Up to 500	1,000	[4] 500

[1] Power is given in terms of effective radiated power (ERP).

[2] Applicants in the Los Angeles, Calif., area who demonstrate a need to serve both the downtown and fringe areas will be permitted to utilized an ERP of 1 kw at the following mountaintop sites: Santiago Peak, Sierra Peak, Mount Lukens, and Mount Wilson.

[3] Stations with antennas below 1,000 ft (AAT) will be restricted to a maximum power of 1 kw (ERP).

[4] Stations with antenna below 500 ft (AAT) Will be restricted to a maximum powr of 500 W (ERP).

TABLE 2.—*Equivalent Powers and Antenna Heights for Suburban-Conventional Base Stations in the 851-866 MHz Band Which Have a Requirement for Less Than 20-mi Service Area Radius—Maximum Effective Radiated Power (Watts)*

Service area radius, miles (kilometers)	Base station antenna height (AAT) (feet)					
	401-500	301-400	201-300	101-200	51-100	0-50
20 (32)	500	500	500	500	500	500
19 (30)	400	500	500	500	500	500
18 (29)	310	385	500	500	500	500
17 (27)	235	300	385	500	500	500
16 (26)	175	220	285	440	500	500

TABLE 2.—*Equivalent Powers and Antenna Heights for Suburban-Conventional Base Stations in the 851-866 MHz Band Which Have a Requirement for Less Than 20-mi Service Area Radius—Maximum Effective Radiated Power (Watts)*—Continued

Service area radius, miles (kilometers)	Base station antenna height (AAT) (feet)					
	401-500	301-400	201-300	101-200	51-100	0-50
15 (24)	130	160	215	330	500	500
14 (22)	95	120	155	240	480	500
13 (21)	70	85	115	175	350	500
12 (19)	50	60	80	125	250	500
11 (18)	35	45	60	90	180	360
10 (16)	25	30	40	60	120	240
9 (14)	15	20	25	40	80	160
8 (13)	10	12	15	25	50	100
7 (11)	6	7	10	15	30	60
6 (10)	3	4	5	7	15	30
5 (8) or less	1	2	3	4	8	16

TABLE 3.—*Equivalent Powers and Antenna Heights for Urban-Conventional and Trunked System Base Stations in the 851-866 MHz Band Which Have a Requirement for Less Than 20-mi Service Area Radius—Maximum Effective Radiated Power (Watts)*

Service area radius (miles)	Base station antenna height (AAT)							
	751-1,000	501-750	401-500	301-400	201-300	101-200	51-100	0-50
20	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
19	800	1,000	1,000	1,000	1,000	1,000	1,000	1,000
18	640	830	1,000	1,000	1,000	1,000	1,000	1,000
17	480	625	960	1,000	1,000	1,000	1,000	1,000
16	360	470	720	900	1,000	1,000	1,000	1,000
15	270	350	540	675	875	1,000	1,000	1,000
14	200	260	400	500	650	1,000	1,000	1,000
13	140	180	280	350	450	700	1,000	1,000
12	100	130	200	250	325	500	1,000	1,000
11	70	90	140	175	230	350	700	1,000
10	45	60	90	110	145	220	440	1,000
9	30	40	60	75	100	150	300	600
8	20	25	40	50	65	100	200	400
7	15	20	30	40	50	80	160	320
6	8	10	16	20	25	40	80	160
5 or less	5	6	9	12	15	25	50	100

(d) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

§ 90.381 Restrictions on operational fixed stations.

(a) Except for control stations, operational fixed operations will not be authorized in the 806-821 and 851-866 MHz bands.

(1) Control stations associated with one or more mobile relay stations will be authorized only on the assigned frequency of the associated mobile station. Use of a mobile service frequency by a control station of a mobile relay system is subject to the condition that harmful interference not be caused to stations of licensees authorized to use the frequency for mobile service communication.

(2) Control stations shall in all cases employ directional antennas with the main lobe of radiation directed toward the station, or stations, being controlled. In each case, the antenna used, consistent with reasonable design, shall produce a radiation pattern that provides only the coverage necessary to permit satisfactory control of each mobile relay station and limits radiation in other directions to the extent feasible.

(3) The strength of the signal of a control station, controlling a single mobile relay station, may not exceed, by more than 6 dB, at the antenna terminal of the mobile relay receiver, the signal strength produced there by a unit of the associated mobile station. When the fixed station controls more than one mobile relay station, the 6 dB control-to-mobile signal difference need be verified at only one of the mobile relay station sites. The measurement of the signal strength of the mobile unit must be made when such unit is transmitting from the control station location or, if that is not practical, from a location which is not more than one-fourth mile from the control station site.

(4) Each application for a control station to be authorized under the provisions of this paragraph shall be accompanied by a statement certifying that the output power of the proposed transmitter will be adjusted to comply with the foregoing signal level limitation. Records of the measurements used to determine the signal ratio shall be kept with the station records and shall be made available, upon request, for inspection by Commission personnel.

§ 90.383 Acceptability of transmitters for licensing in the 806-821 and 851-866 MHz bands.

Except for transmitters used in developmental stations, each transmitter utilized by a station authorized for operation in these bands must be a type which is included on the Commission's current Radio Equipment List, or be of a type which has been type-accepted by the Commission for use in these bands.

OPERATING REQUIREMENTS IN THE 806-821 MHz AND 851-866 MHz BANDS

§ 90.385 Restrictions and limitations on permissible communications, on use, and on mode of operation.

(a) Systems licensed to provide service to persons or entities eligible under Subparts B, C, D, or E of this part may, in conformity with the following restrictions, be used:

(1) Only for purposes expressly allowed under this part.

(2) Only by persons who are eligible for facilities, either under this subpart or in the radio services included under Subparts B, C, D, or E of this part.

(3) Only for the transmission of messages or signals permitted in the service in which the participants are eligible.

(4) Only in the private dispatch mode of operation.

(b) Except as provided at paragraph (c) of this section, radio systems licensed under this subpart may be used for voice communications (telephony), only.

(c) Notwithstanding any contrary provisions in this subpart, a system licensed for use by a person or entity eligible under Subparts B, C, D, or E of this part may be employed for any purpose or operated in any manner, including the use of F2, F4, F9, and F9Y emissions and in the Police and Fire Radio Services only, F3Y emission which is consistent with the regulations governing the service in which the user is eligible: *Provided*, That the loading standard which applies to the system is met and the channel or channels are assigned to that person or entity for its exclusive use.

§ 90.387 Station identification.

(a) Conventional systems of communication shall be identified in accordance with existing regulations governing such matters.

(b) Trunked systems of communication shall be identified through the use of an automatic device which transmits the call sign of the base station facility at 30-minute intervals. Such station identification shall be made on the lowest frequency in the base station trunk group assigned to the licensee. Should this frequency be in use at the time station identifica-

tion is required, such identification may be made at the termination of the communication in progress on this frequency. Identification may be by voice or International Morse Code. When the call sign is transmitted in International Morse Code, it should be at a rate of between 15 to 20 words per minute; and it should be transmitted by the means of tone modulation of the transmitter, the tone frequency being between 800 and 1000 hertz. The level of modulation is to be high enough to be clearly discernible, but low enough not to be disruptive of voice communications in progress.

§ 90.389 Restriction on interconnection.

Radio systems licensed under this subpart may be interconnected with wire line facilities of any telephone company; *Provided, however,* Such interconnection is accomplished at a control point or control station, which is situated at a fixed location (not in a mobile unit), licensed to the user, where a person directly responsible for the operation of the base station or stations is on duty, and where all of the applicable requirements set out at § 90.461-90.467 are met. Such interconnection may not be accomplished at the base station site or sites; nor may it be accomplished at any location other than the licensee's principal office or place of business. This shall be construed to bar interconnection at a common location, used for dispatching or for control, by the licensee together with other licensees or users, such as, a telephone answering service. *Provided further, however,* This provision shall not be interpreted to preclude common dispatching from such a location nor the relaying of messages through to mobiles of the licensee by such a dispatcher.

§ 90.391 Supplemental reports required of licensees authorized under this subpart.

(a) Licensees providing service to persons eligible either under Subparts B, C, D, or E of this part on a not-for-profit, cost-shared basis, shall, prior to furnishing service to any user not previously identified, notify the Commission of his intention to do so and furnish the Commission with sufficient information as to the prospective user to enable it to determine whether this person is eligible to participate in the sharing arrangement. Service to the participant may commence 30 days after such notification, unless the licensee is advised, in writing, of any deficiency in the licensees' showing or in the eligibility of the person to be served. In the latter case, until the deficiency is corrected or the user is shown to be qualified and eligible, he may not participate in the use of the system.

(b) Where a licensee provides service under the terms of an agreement, on a not-for-profit, cost-shared basis, such agreements may not be modified in any material respect until the changes in the terms and conditions are reported to, and approved by the Commission.

(c) Where a licensee provides service on a commercial basis, he shall not modify, in any material respect, the basic agreement under which such service is provided until the changes in its terms and conditions are reported to, and approved by, the Commission.

(d) Licensees offering service on a commercial basis to any person or entity eligible under either under either Subpart B, C, D, or E of this part, or to the public, must report, annually and at the time of filing applications for renewal of license, the number of mobile units being serviced; and such licensees shall, at that time, give the name and full address of each customer; the number of mobile units operated by each of them; and such other data as the party reporting may feel would be helpful in determining channel occupancy of the system, together with a certification that the terms of the basic agreement under which service is provided have not been modified or changed in any material respect. Such data shall be current as of the day and date falling 30 days prior to the date on which such licensees are required to file for renewal of their licenses, or, for the annual reports, at the close of the 12-month period covered by the annual report. The licensees of systems of the type covered by the provisions of this rule shall maintain records which, if referred to, will support any of the information required to be filed in the subject report. These records shall be available to the Commission upon request.

(e) Licensees furnishing service to eligible persons on a not-for-profit, cost-shared basis, shall, within 30 days of the close of the first full calendar year of operation, and each year thereafter, submit a report setting out the following information:

(1) A certification that during the period covered by the report, services have been offered and provided in accordance with the terms and conditions of the agreement approved by the Commission; that said agreement has not been modified or changed, except with the express approval of the Commission; and that records have been kept which show that service and facilities were made available on a not-for-profit, cost-shared basis. These records shall be available to the Commission upon request.

(2) A list of persons served during the period covered by the report.

(3) The number of mobile units operated by each user and a statement showing whether these units are of the vehicular or portable type.

(4) The total number of units served by the system during the period of the report, together with the number served on January 1st and on December 31st of the year of the report, and the average number of such mobile units served during this period of time.

(f) Licensees of trunked systems serving only themselves shall report annually, and at the time of filing applications for renewal of licenses, the number of mobile units being served, together with such other data as the licensees may feel would be helpful to the Commission in determining channel occupancy of their systems. Records supporting the information required in these reports shall be maintained by the licensees and shall be available to the Commission upon request.

(g) All licensees of conventional systems, in addition to the other requirements of this section, shall report the number of vehicular and portable units placed in operation within 8 months of the date of the grant of their license. Such reports shall be filed within 30 days from that date.

(h) All licensees of trunked systems shall report, within seven (7) months of the date of the grant, whether or not construction of the authorized facility has begun, and within thirteen months of the date of the grant, whether or not construction of the facility has been completed.

OTHER PROVISIONS GOVERNING THE USE OF THE 806-821 MHz AND 851-866 MHz BANDS

§ 90.393 Special conditions governing the furnishing of radio equipment by licensees.

Every licensee of a trunked or conventional system furnishing base station facilities on a commercial basis, under this subpart, shall afford users the option of purchasing, leasing, or renting the associated control and mobile station radio gear. Should a user elect to lease or to rent the equipment and should the lease or rental arrangement involve no more than five (5) transmitting/receiving units, the user must be given the further right to cancel the lease or rental agreement at any time, without penalty, on ten days' written notice.

§ 90.395 Number of systems authorized in a geographical area.

There shall be no limit on the number of trunked systems authorized to operate in any one given area except that imposed by allocation limitations and no person authorized to operate any trunked radio facility

shall have a right to protest any other proposal on grounds other than violation of any inconsistency with the provisions of this subpart. All grants are made subject to the conditions and standards set out in this subpart.

§ 90.397 Special licensing requirements for radio systems used to provide service to persons other than the licensee.

Where a conventional or a trunked radio system is to be used to provide radio facilities to a single user or to multiple users, on a commercial basis, any associated control points, control stations, and mobile radio stations shall be authorized only to the user of those particular facilities.

Subpart N—Operating Requirements

§ 90.401 Scope.

The subpart prescribes general operating requirements for stations licensed under this part. This includes station operating procedures, points of communication, permissible communications, methods of station identification, control requirements, and station record keeping requirements.

§ 90.403 General operating requirements.

(a) Licensees of radio stations in the private land mobile radio services shall be directly responsible for the proper operation and use of each transmitter for which they are licensed. In this connection, licensees shall exercise such direction and control as is necessary to assure that all authorized facilities are employed:

(1) Only for permissible purposes;

(2) Only in a permissible manner; and

(3) Only by persons with authority to use and operate such equipment.

(b) In carrying out their responsibilities under § 89.900(a), licensees shall be bound by the provisions of the Communications Act of 1934, as amended, and by the rules and regulations of the Commission governing the radio service in which their facilities are licensed; and licensees may not, through written or oral agreements or otherwise, relieve themselves of any duty or obligation imposed upon them, by law, as licensees.

(c) Each licensee shall restrict all transmissions to the minimum practicable transmission time and shall employ an efficient operating procedure designed to maximize the utilization of the spectrum.

(d) Communications involving the imminent safety-of-life or property are to be afforded priority by all licensees.

(e) Licensees shall take reasonable precautions to avoid causing harmful interference. This includes monitoring the transmitting frequency for communications in progress and such other measures as may be necessary to minimize the potential for causing interference.

(f) Stations licensed in this part shall not continuously radiate except where required for tests as permitted in Section 90.405, except where specifically permitted by this part, where specifically authorized in the station authorization, or on an as needed basis in the Radiolocation Radio Service.

(g) The radiations of the transmitter shall be suspended immediately upon detection or notification of a deviation from the technical requirements of the station authorization and until such deviation is corrected. For transmissions concerning the imminent safety-of-life or property, the transmissions shall be suspended as soon as the emergency is terminated.

§ 90.405 Permissible communications.

Stations licensed under this part may transmit only the following types of communication:

(a) Any communication related directly to the imminent safety-of-life or property;

(b) Communications directly related and necessary to those activities which make the licensee eligible for the station license held under this part. In addition, when communication service is provided under the cooperative sharing provisions of § 90.179, the licensee providing such service may transmit communications related to the activities for which the parties receiving the service would be eligible to be licensed.

(c) Communications for testing purposes required for proper station and system maintenance. However, each licensee shall keep such tests to a minimum and shall employ every measure to avoid harmful interference.

§ 90.407 Communications permitted during emergency situations.

The licensee of any station authorized under this part may, during a period of emergency in which the normal communication facilities are disruptive as a result of hurricane, flood, earthquake, or similar disaster, utilize such station for emergency communication without regard to § 90.405, but in accordance with the following:

(a) As soon as possible after the beginning of such emergency use, notice is sent to the Commission in Washington, D.C., and to the Engineer in Charge of the Radio District in which the station is located, stating the nature of the emergency and the use to which the station is being put;

(b) The emergency use of the station be discontinued as soon as substantially normal communication facilities are again available, and the Commission in Washington, D.C., and the Engineer in Charge be notified immediately when such special use of the station is terminated; and

(c) The Commission may at any time order discontinuance of such special use of the authorized facilities.

§ 90.409 Emergency operation of Public Safety and Special Emergency mobile stations at fixed locations.

During an emergency requiring a local communication center, any mobile transmitter authorized in the Public Safety or Special Emergency Radio Services may be operated temporarily as a base station at a fixed location for a period not to exceed ten days. If operation for a longer period is required, such operation must be specifically authorized.

§ 90.411 Civil Defense Communications in the Public Safety and Special Emergency Radio Services.

The licensee of any radio station licensed in the Public Safety or Special Emergency Radio Services may, on a voluntary basis, transmit communications necessary for the implementation of civil defense activities assigned such station by local civil defense authorities during an actual or simulated emergency, including drills and tests. Such communications, however, must relate to the activity or activities which form the basis of the licensee's eligibility in the radio service in which he is authorized.

§ 90.413 Civil Defense Communications in the Taxicab Radio Service.

In addition to communications permitted by § 90.405, stations in the Taxicab Radio Service may be used for the transmission of the following:

(a) Messages relating to the dispatch of taxicabs which are temporarily diverted from their normal public passenger transportation activities to the performance of civil defense transportation functions.

(b) Messages relating to the activities of the civil defense agency in those cases where other communications facilities including the Radio Amateur Civil Emergency Service, Disaster, or Domestic Public Services are inoperative or inadequate, either in fact or during a simulated civil defense emergency: *Provided*, That:

(1) As soon as possible after the beginning of such use, the licensee shall send notice to the Commission in Washington, D.C., and to the Engineer in Charge of the Radio District in which the station is located, stating the nature of the communications being transmitted and the duration of the special use of the station. In addition, the Engineer in Charge shall be notified as soon as possible of any change in the nature of or termination of such use.

(2) In the event such use is to be a series of pre-planned tests or drills of the same or similar nature which are scheduled in advance for specific times or at certain intervals of time, the licensee may send a single notice to the Commission in Washington, D.C., and to the Engineer in Charge of the Radio District in which the station is located, stating the nature of the communications to be transmitted, the duration of each such test, and the times scheduled for such use. Notice shall likewise be given in the event of any change in the nature or termination of any such series of tests.

(3) The Commission may, at any time, order the discontinuance of such special use of the authorized facilities.

§ 90.415 Prohibited uses.

Stations licensed under this part shall not:

(a) Transmit program material of any kind for use in connection with broadcasting; or

(b) Render a communications common carrier service, except for stations in the Special Emergency Radio Service providing communications standby facilities under § 90.49, or operational fixed stations licensed in the Railroad Radio Service handling public telegraph messages as agents of telegraph common carriers in those instances where such public telegraph service cannot be efficiently provided through other railroad facilities.

§ 90.417 Interstation communication.

(a) Any station licensed under this part may communicate with any other station without restriction as to type, service, or licensee when the communications involved relate directly to the imminent safety-of-life or property.

(b) Any station licensed under this part may communicate with any other station licensed under this part, with U.S. Government stations, and with foreign stations, in connection with mutual activities, provided that where the communication involves foreign stations prior approval of the Commission must be obtained, and such communication must be permitted by the government that authorizes the foreign station. Communications by Police Radio Service stations with foreign stations will be approved only to be conducted in accordance with article 5 of the Inter-American Radio Agreement, Washington, D.C., 1949, the provisions of which are set forth in § 90.19(c).

§ 90.419 Points of communication.

Normally, operations licensed under this part are intended to provide intrastation mobile communications. For example, a base station is intended to communicate with its associated mobile stations and mobile stations are intended to communicate between associated mobile stations and associated base stations of the licensee. Accordingly, operations between base stations at fixed locations are permitted only in the following situations:

(a) Base stations licensed in the Public Safety and Special Emergency Radio Services may communicate with other base stations, operational fixed stations, or fixed receivers authorized in these services on frequencies below 450 MHz only on a secondary basis.

(b) Base stations licensed on any frequency in the Industrial and Land Transportation Radio Services and on base station frequencies above 450 MHz in the Public Safety and Special Emergency Services may communicate on a secondary basis with other base stations, operational fixed stations, or fixed receivers authorized in these services only when:

(1) The messages to be transmitted are of immediate importance to mobile stations; or

(2) Wireline communications facilities between such points are inoperative, economically impracticable, or unavailable from communications common carrier sources. Temporary unavailability due to a busy wireline circuit is not considered to be within the provisions of this subparagraph.

(c) Operational fixed stations may communicate with units of associated mobile stations only on a secondary basis.

(d) Operational fixed stations licensed in the Industrial and Land Transportation Radio Services may communicate on a secondary basis with associated base stations licensed in these services when:

(1) The messages to be transmitted are of immediate importance to mobile stations; or

(2) Wireline communications facilities between such points are inoperative, economically impracticable, or unavailable from communications common carrier sources. Temporary unavailability due to a busy wireline circuit is not considered to be within the provisions of this subparagraph.

(e) Travelers' Information Stations are authorized to transmit certain information to members of the traveling public (see Sec. 90.241).

§ 90.421 Operation of mobile units in vehicles not under the control of the licensee.

Mobile station transmitters may be installed in vehicles operated by persons other than the licensee as provided in the following paragraphs when necessary for the licensee to meet his requirements in connection with the activities for which he is licensed. The number of units so installed, together with units installed in vehicles operated by the licensee, must not exceed the number of mobile units authorized to the licensee. When an insufficient number of units is licensed to cover such additional units, the license must be modified to add a sufficient number of mobile units. The licensee is responsible for taking any necessary precaution to effectively eliminate the possibility of unauthorized operation of transmitters when not under the control of the licensee.

(a) Mobile units licensed in the Local Government Radio Service may be installed in any vehicle which in an emergency would require cooperation and coordination with the licensee, and in any vehicle used in the performance, under contract, of official activities of the licensee. This includes ambulances, emergency units of public utilities, lifeguard units, and vehicles of contractors or other persons or agencies performing for the licensee under contract one or more of its local government functions. This provision does not permit the installation of radio units in non-emergency vehicles not performing governmental functions under contract but with which the licensee might wish to communicate.

(b) Mobile units licensed in the Police Radio Services may be installed in any vehicle which in an emergency would require cooperation and coordination with the activities of the licensee. This includes emergency units of public utilities, lifeguard emergency units, ambulances, fire department vehicles and rural school buses.

(c) Mobile units licensed in the Fire Radio Service may be installed in emergency vehicles which may be alerted during a fire emergency. This includes emergency units of public utilities and water departments.

(d) Mobile units licensed in the Highway Maintenance Radio Service may be installed in vehicles of contractors or other persons having a direct responsibility for official highway activities.

(e) Mobile units licensed in the Forestry-Conservation Radio Services may be installed in vehicles of forestry cooperators, and persons having a direct responsibility in the prevention, detection, and suppression of forest fires.

(f) Mobile units licensed in the medical services category of the Special Emergency Radio Service may be installed in a vehicle or be hand-carried for use by any person with whom cooperation or coordination is required for medical services activities.

(g) Mobile units licensed in the Industrial Radio Services may be installed in vehicles of persons furnishing under contract to the licensee and for the duration of the contract, a facility or service directly related to the activities of the licensee.

(h) Mobile units licensed to an electric utility in the Power Radio Service on frequencies designated for use by an interconnected utility system may be installed in any vehicle operated by an organization or association comprised of interconnected electric utilities forming interconnections, power pools or groups.

(i) Mobile units authorized in the Automobile Emergency Radio Service may be installed in the vehicles of persons furnishing a private emergency road service to its members pursuant to a contract with the association.

§ 90.423 Operation on board aircraft.

(a) Except as provided in paragraphs (b), (c), and (d) of this section, and except as may be provided in other sections of this part with respect to operation on specific frequencies, mobile stations first authorized after September 14, 1973, under this part may be operated aboard aircraft for air-to-mobile, air-to-base, air-to-air and air-to-ship communications subject to the following:

(1) Operations are limited to aircraft that are regularly flown at altitudes below one mile (1.6 km) above the earth's surface;

(2) Transmitters are to operate with an output power not to exceed ten watts;

(3) Operations are secondary to landbased systems;

(4) Such other conditions, including additonal reductions of altitude and power limitations, as may be required to minimize the interference potential to land-based systems.

(b) Exceptions to the altitude and power limitations set forth in paragraph (a) of this section may be authorized upon a showing of unusual operational requirements which justify departure from those standards, provided that the interference potential to regular land-based operations would not be increased.

(c) Mobile operations aboard aircraft in the services governed by this part, under licenses in effect September 14, 1973, may be continued without regard to provisions of paragraph (a) of this section, as follows:

(1) Operations may be continued only for the balance of the term of such licenses if aircraft involved are regularly flown at altitudes greater than one mile (1.6 km) above the earth's surface.

(2) Operations may be continued for one additional renewal license term if the aircraft involved are regularly flown at altitudes below one mile (1.6 km) above the earth's surface.

(d) Operation of radiolocation mobile stations may be authorized without regard to limitations and conditions set forth in paragraph (a), (b), and (c) of this section.

§ 90.425 Station identification.

Stations licensed under this Part shall transmit identification in accordance with the following provisions:

(a) *Identification procedure:* Except as provided in paragraph (d) of this section, each station shall be identified by the transmission of the assigned call sign during each transmission or exchange of transmissions, or once each 15 minutes (30 minutes in the Public Safety and Special Emergency Radio Services) during periods of continuous operation. The call sign shall be transmitted by voice in the English language, or by International Morse Code in accordance with paragraph (b) of this section. Permissible alternative identification procedures are as follows:

(1) A base station (including a mobile relay station) which is controlled by radio may be identified by the transmission of the call sign of the station at which communications originate.

(2) One or more fixed relay stations may be identified by the transmission of the call signs of the stations at which the communications originate.

(3) When a mobile station transmits on a different frequency than its associated base station, the assigned call sign of either the mobile station or the base station may be transmitted. Further, a single mobile unit in the licensee's authorized geographic area of operation may transmit station on behalf of any other operating mobile units in the fleet.

(4) *Use of an identifier other than the assigned call sign.* (i) In the Public Safety and Special Emergency Radio Services, mobile units licensed to a governmental entity and which operate on frequencies above 30 MHz may use an identifier which contains, at a minimum, the name of the licensee; *Provided,* That the licensee notifies, in writing, the Engineer-in-Charge of the field office area in which the units will operate, of the specific identifier(s) to be used by the mobile units.

(ii) In the Land Transportation Radio Services, licensees may request the Commission's local Engineer-in-Charge to approve the use of special mobile unit identifiers in lieu of the assigned call sign. Such requests, however, will not be granted where it appears that harmful interference to international operations may be caused by stations below 50 MHz, or by stations operating in areas within 50 miles of an international boundary, or where it appears that the proposed method of identification will not adequately distinguish the mobile units of the applicant from the mobile units of other licensees in the area.

(iii) In the Railroad Radio Service, stations may be identified by the name of the railroad and the train number, caboose number, engine number, or the name of the fixed wayside station. If none of these forms are practicable, any similar name or number may be designated by the railroad concerned for use by its employees in the identification of fixed points or mobile units; *Provided,* That, a list of such identifiers is maintained by the railroad. An abbreviated name or the initials of the railroad may be used where such are in general usage. In those areas where it is shown that no difficulty would be encountered in identifying the transmission of a particular station (as, for example, where stations of one licensee are located in a yard isolated from other radio installations), approval may be given to a request from the licensee for permission to omit the station identification.

(5) *Use of identifiers in addition to assigned call signs.* Nothing in this section shall be construed as prohibiting the transmission of station or unit identifiers which may be necessary or desirable for system operation, *Provided,* That, they are transmitted in addition to the assigned station call sign or other permissible form of identification.

(b) *Use of automatic Morse code identification equipment.* Automatically activated equipment may be used to transmit station identification in International Morse Code pursuant to the following conditions:

(1) The signal output of the automatic identification equipment shall be connected to the transmitter at the microphone input or any other manufacturer-provided signal input terminal and shall be adjusted to produce 40 percent ± 10 percent of the maximum permissible modulation or deviation level. This adjustment shall be performed when all other modulating signals are absent.

(2) The Morse code transmission rate shall be maintained between 20 and 25 words per minute.

(3) The frequency of the keyed tone comprising the identification signal shall be 1200 ± 800 Hz. A licensee may be required to change the frequency in order to prevent interference to the operations of another co-channel licensee.

(4) Should activation of automatic Morse code identification equipment interrupt the communications of another co-channel licensee, the Commission may require the use of equipment which will delay automatic station identification until such co-channel communications are completed.

(c) *Special provisions for identification in the Radiolocation Service.*

(1) Stations in the Radiolocation Service operating on frequencies below 3400 kHz shall identify on each carrier frequency by the transmission of the assigned call sign at the beginning and

end of each period of operation. Such identification shall be by the Morse Code signals specified in the Telegraph Regulations annexed to the International Telecommunications Convention, Geneva, 1959, using A1 or A2 emission. For the latter emission, either the modulating audio frequency or the modulated emission may be keyed.

(2) Stations in the Radiolocation Service operating on frequencies above 3400 kHz are not required to identify except upon specific instruction from the Commission.

(D) *General exemptions.* A station need not transmit identification if:

(1) It is a mobile station operating on the transmitting frequency of the associated base station (or an associated control station in a mobile relay system) when communicating with a control station.

(2) It is a mobile station in the Police or Fire Radio Services using F3Y emission.

(3) It is transmitting for telemetering purposes or for the activation of devices which are employed solely as a means of attracting attention, or for remote control purposes, or which is retransmitting by self-actuating means, a radio signal received from another radio station or stations.

(4) It is any type of radiopositioning or radar station authorized in a service other than the Radiolocation Service.

(5) It is used solely for automatic vehicle monitoring or location.

§ 90.427 Precautions against unauthorized operation.

Each transmitter shall be so installed and protected that it is not accessible to or capable of operation by persons other than those duly authorized by and under the control of the licensee. Provisions of this part authorizing certain unlicensed persons to operate stations, or authorizing unattended operation of stations in certain circumstances, shall not be construed to change or diminish in any respect the responsibility of station licensees to maintain control over the stations licensed to them (including all transmitter units thereof), or for the proper functioning and operation of those stations and transmitter units in accordance with the terms of the licenses of those stations.

§ 90.429 Control point and dispatch point requirements.

(a) *Control point required.* Unless permitted to be operated on an unattended basis, each station shall be provided with a control point;

(b) A control point is an operating position:

(1) Which must be under the control and supervision of the licensee;

(2) Where a person immediately responsible for the operation of the transmitter is stationed;

(3) Where the monitoring facilities required by this part are installed.

(c) *Control point location.* The location of the control point will be specified in the station license and will be assumed to be the same as that of the transmitting equipment unless an application for a different location has been approved by the Commission.

(d) *Control point facilities required.* At each control point, the following facilities shall be installed:

A carrier operated device which will provide continuous visual indication when the transmitter is radiating, or, a pilot lamp or meter which will provide continuous visual indication when the transmitter circuits have been placed in a condition to produce radiation. The provisions of this subparagraph shall not apply to hand-carried transmitters or transmitters installed on motorcycles. The control point for a transmitter utilized to activate another radio station may employ a single pilot lamp or meter as an indication of the activation of local and remote transmitters.

(2) Equipment to permit the person responsible for the operation of the transmitter to monitor aurally all transmissions orginating at dispatch points under his supervision;

(3) Facilities which will permit the person responsible for the operation of the transmitter either to disconnect the dispatch point circuits from the transmitter or to render the transmitter inoperative from any dispatch point under his supervision; and

(4) Facilities which will permit the person responsible for the operation of the transmitter to turn the transmitter carrier on and off at will.

(e) *Dispatch point.* A dispatch point is any position from which messages may be transmitted under the supervision of the person at a control point who is responsible for the operation of the transmitter. Dispatch points may be installed without authorization from the Commission.

§ 90.431 Unattended operation.

No person is required to be in attendance at a station when transmitting during normal rendition of service and when either:

(a) Transmitting for telemetering purposes; or,

(b) Retransmitting by self-actuating means a radio signal received from another radio station or stations.

§ 90.433 Operator license requirements.

No operator license or permit is required for the operation of stations licensed under this part except as follows:

(a) *Maintenance and tests.* All transmitter adjustments or tests during the installation, servicing, or maintenance of a radio station which may affect the proper operation of such station shall be made by or under the immediate supervison and responsibility of a person holding a first- or second-class commercial radio operator license, either radiotelephone or radiotelegraph, who shall be responsible for the proper functioning of the station equipment. Only persons holding a radiotelegraph first- or second-class operator license shall perform such functions at radiotelegraph stations transmitting by any type of the Morse Code.

(b) *Operation during the course of normal rendition of radiotelegraph service.* Only a person holding a commercial radiotelegraph operator license of any class issued by the Commission shall operate a station when transmitting radiotelegraphy by any type of the Morse Code, generally, only police zone and interzone stations will be transmitting radiotelegraphy.

§ 90.435 Posting of operator license.

Each person required to have an operator's license under this section shall post, or have immediately available at a place he is normally based or on duty, the original of his license, except that when he is performing duty at a station where he is not normally based, he shall have on his person a valid license identification card (FCC Form 785-F).

§ 90.437 Posting station licenses.

(a) The current original authorization for each station shall be retained as a permanent part of the station records but need not be posted.

(b) A clearly legible photocopy of the authorization for each base or fixed station at a fixed location shall be posted at every control point of the station.

§ 90.439 Inspection of stations

All stations and records of stations in these services shall be made available for inspection at any reasonable time and any time while the station is in operation upon reasonable request of an authorized representative of the Commission.

§ 90.441 Inspection and maintenance of tower marking and associated control equipment.

(a) The licensee of any radio station with an antenna structure that must be painted or illuminated as specified in the station authorization is required to maintain the tower marking and associated control equipment in accordance with the following:

(1) The tower lights shall be checked at least once each 24 hours. Assurance

that such lights are functioning properly shall be accomplished by visually observing either the tower lights or by observing an automatic indicator that registers any failure of such lights. Alternately, an automatic alarm system which detects any failure of the tower lights and indicates such failure to the licensee may be used but must be properly maintained.

(2) Any observed or otherwise known failure of a code or rotating beacon light or top light not corrected within 30 minutes, regardless of the cause of such failure, shall be reported immediately by telephone or telegraph to the nearest Flight Service Station or office of the Federal Aviation Administration. Further notification by telephone or telegraph shall be given immediately upon resumption of the required illumination.

(3) All automatic or mechanical control devices, indicators, and alarm systems associated with the tower lights shall be inspected at intervals not to exceed three months, to insure that such apparatus is functioning properly.

(4) All lighting shall be exhibited from sunset to sunrise unless otherwise specified in the instrument of station authorization.

(5) All towers shall be cleaned or repainted as often as is necessary to maintain good visibility.

(b) Licensees operating stations licensed under this part which share a tower used for antenna and/or antenna supporting purposes with other licensees under this part or under this chapter, may designate in writing one licensee or an appropriate non-licensed agent to be responsible for maintenance and inspection of the tower, and maintenance of the inspection log. In such cases, a copy of the agreement must be filed with the Commission to be maintained in each participating licensee's station file.

§ 90.443 Content of station records.

Each licensee of a station in these services shall maintain records in accordance with the following:

(a) For all stations, the results and dates of the transmitting measurements required by § 90.215 of this part and the name of the person or persons making the measurements.

(b) When service or maintenance duties are performed on stations, the responsible operator shall sign and date an entry in the station record giving:

(1) Pertinent details of all duties performed by and under the supervision of the operator;

(2) The operator's name and address, and;

(3) The class, serial number and expiration date of the operator's license. Information stipulated in subparagraphs (2) and (3) of this paragraph need be entered only once in the station record at any station where the responsible operator is employed on a full time basis and an operator's license is properly posted.

(c) For stations whose antenna or antenna supporting structure must be illuminated, the licensee will record:

(1) The time the tower lights are turned on and off each day, if manually controlled.

(2) The time the daily check of proper operation of the tower lights was made, if an automatic alarm system is not provided.

(3) Any observed or otherwise known failure of a tower light by indicating:

(i) The nature of such failure.

(ii) The date and time the failure was observed or otherwise noted.

(iii) The date, time, and nature of adjustments, repairs or replacements made.

(iv) The identification of the Flight Service Station (Federal Aviation Administration) notified of the failure of any code or rotating beacon light not corrected within 30 minutes, and the date and time such notice was given.

(v) The date and time notice was given to the Flight Service Station of the Federal Aviation Administration that the required illumination was resumed.

(4) The completion of the 3-month periodic inspection required by § 90.441 of this part by indicating:

(i) The date of the inspection and the condition of all tower lights and associated tower lighting control devices, indicators and alarm systems.

(ii) Any adjustments, replacements, or repairs made to insure compliance with the lighting requirements and the date such adjustments, replacements or repairs were made.

§ 90.445 Form of station records.

(a) Station records shall be kept in an orderly manner, and in such detail that the data required are readily available. Key letters or abbreviations may be used if proper meaning or explanation is set forth in the record.

(b) Each entry in the records of each station shall be signed by a person qualified to do so, having actual knowledge of the facts to be recorded.

(c) No record or portion thereof shall be erased, obliterated, or wilfully destroyed within the required retention period. Any necessary correction may be made only by the person originating the entry, who shall strike out the erroneous portion, initial the correction made, and indicate the date of correction.

§ 90.447 Retention of station records.

Records required by this part shall be retained by the licensee for at least one year.

§ 90.449 Answers to a notice of violation.

Any licensee receiving official notice of a violation of the terms of the Communications Act of 1934, as amended, any legislative act or treaty to which the United States is a party, or the rules and regulations of the Federal Communications Commission, shall, within 10 days from such receipt or such other period as may be specified, send a written answer to the office of the Commission originating the original notice. If an answer cannot be sent, or an acknowledgement made within such period, acknowledgement and answer shall be made at the earliest practicable date with a satisfactory explanation of the delay. The answer to each notice shall be complete in itself and shall not be abbreviated by reference to other communications or answers to other notices. The reply shall set forth the steps taken to prevent a recurrence of improper operation.

Subpart O—Transmitter Control

§ 90.461 Direct and remote control of transmitters.

(a) *In general.* Radio transmitters may be operated and controlled directly (as when the operating position for the transmitter and the transmitter being operated are at the same location), or remotely (as when the transmitter being operated and the position from which it is being operated are at different locations).

(b) *Control of transmitters at remote locations.* Radio transmitters at remote locations may be operated and controlled through the use of wire line or radio links; or through dial-up circuits, as provided in subparagraph (c) of this section. Such control links or circuits may be either those of the licensee or they may be provided by common carriers authorized by law to furnish such service.

(c) *Dial-up circuits.* Dial-up circuits may be provided by wire line telephone companies under appropriate tariffs, and they may be used by licensees for purposes of transmitter control, provided:

(1) The dial-up circuits serve only to link licensed transmitter control points and the transmitters being controlled; and,

(2) The dial-up circuits are so designed that the transmitters being controlled cannot be operated from any fixed position other than the licensed control points for those transmitters.

(3) Equipment used to provide the transmitter/dial-up-circuit interface is designed to preclude associated mobile units of the licensee from reaching any point(s) served by the wire line telephone facilities other than the

control point(s) of the station(s) controlled.

(4) Any direct electrical connection to the telephone network shall comply with applicable tariffs and with Part 68 of the Commission's rules (See § 90.5(h)).

(5) Dial-up, transmitter control circuits may not be employed in any system of communication which is interconnected with the public, switched, telephone network within the meaning of §§ 90.7 and 90.477 through 90.483.

§ 90.463 Transmitter control points.

(a) A control operator is required to be stationed at the operating position of a transmitter control point. A control operator is any person designated by the licensee to exercise supervision and control over the operation and use of the licensee's facilities. The control operator may be the licensee, himself; or an employee of the licensee; or the agent of the licensee, appointed by the licensee to act as the control operator; or a third-party contractor, engaged by the licensee to serve as the control operator: *Provided, however,* In no case, through appointment or designation of any person to serve as control operator, may the licensee delegate any of the duties and responsibilities the licensee may have in his capacity as licensee.

(b) Each station or licensed system of communication shall normally have a control point, or control points, at which the control operator or operators are stationed and at or from which the licensee may exercise supervision and control over the authorized facilities, as required by the provisions of § 90.461. *Provided, however,* Control point requirements may vary from one system to another, depending upon the nature of the radio operation; the way and by whom the facilities are employed; and other factors, as set out in other rule sections under this subpart.

(c) A transmitter control point may be located at a fixed position in a system of communication at or from which the control operator exercises supervision and control over the operation and use of the licensed facilities. Each fixed transmitter control point shall have equipment and facilities to permit the control operator:

(1) To determine when the transmitter or transmitters controlled are either radiating "RF" energy, or when the transmitter circuits have been placed in a condition to produce such radiation. This may be accomplished either through the use of a carrier operated device which provides a visual indication when the transmitter(s) are radiating or a pilot lamp or meter which provides a visual indication when the transmitter circuits have been placed in a condition to produce radiation. Further, where a local transmitter is used to activate a remote transmitter or transmitters in the licensee's system of communication, a single pilot lamp or meter may be employed to indicate the activation of both the local and the remote transmitter(s).

(2) To turn the carrier of the transmitter on and off at will, or to close the system down completely, when circumstances warrant such action.

(d) Where the licensee's transmitting facilities may be operated from dispatch points, the fixed control point shall have equipment to permit the control operator:

(1) To aurally monitor all transmissions originating at those dispatch points which are under the supervision of the control operator; and,

(2) To either disconnect the dispatch point circuits from the transmitter(s) or to render the transmitter(s) inoperative from any dispatch point being supervised.

(e) Where the system is interconnected with public communication facilities, as provided at §§ 90.477 through 90.483, and where those rules so require, the fixed control point shall be equipped to permit the control operator:

(1) To monitor co-channel facilities of other licensees sharing an assigned channel or channels with the licensee in the licensee's area of operation; and,

(2) To either terminate any transmissions or communication(s) between points in the public communication system and points in the private system of communication.

(f) In urban areas, the location of fixed transmitter control points will be specified, "same as transmitter," unless the control point is at a street address which is different from that of the transmitter(s) controlled. In rural areas, the location of fixed control points will be specified, "same as transmitter," unless the control point is more than 500 feet from the transmitter(s) controlled. In the latter case, the approximate location of the control point will be specified in distance and direction from the transmitter(s) controlled in terms of feet and geographical quadrant, respectively. It would be assumed that the location of a fixed control point is the same as the location of the transmitter(s) controlled, unless the applicant includes a request for a different location described in appropriate terms as indicated herein.

(g) Authority must be obtained from the Commission for the installation of additional fixed control points, and until such authority is granted, transmitters may not be controlled from such points.

(h) Mobile transmitters shall be assumed to be under the immediate control of the mobile operator; provided, however, overall supervision and control of the operation and use of a communication system may be the responsibility of a fixed control point operator. In general, mobile transmitters shall be equipped to permit the operator to determine when they are radiating "RF" energy or when the transmitter circuits have been placed in a condition to produce such radiation. This may be accomplished either through the use of a carrier operated device or of a pilot lamp or meter which will provide a visual indication when the transmitter is radiating or has been placed in a condition to produce radiation provided, however, that hand-carried or pack-carried transmitters and transmitters installed on motorcycles need not be so equipped.

§ 90.465 Control of systems of communication.

(a) Depending on design considerations, control of a system of communication may be exercised in varying ways. In SF simplex, base/mobile operations, control may be exercised by the control operator at the fixed control point. In mobile relay systems, where there is an associated control point or control station, control may be exercised by the operator at the control point or control station. In mobile-only systems, control may be exercised by the mobile operator. In communication systems involving multiple base stations or fixed relays control of the system may result from a combination of factors and considerations, including control by a fixed control point operator at some point within the system of communication or control by the mobile station operator of the licensee.

(b) In internal systems, as defined at § 90.7 control may be maintained by conforming the system to the requirements of §§ 90.471 through 90.475.

(c) In interconnected systems, as defined at § 90.7 control may be maintained by conforming operation and system design to that permitted at §§ 90.477 through 90.483.

§ 90.467 Dispatch Points.

Dispatch points meeting the requirements of this section need not be specifically authorized; provided, however, that the licensee of any radio station operated from a dispatch point or points shall assume full responsibility for the use and operation of the authorized facilities in compliance with all applicable provisions of law or rule and shall comply with the policy:

(a) A dispatch point may be linked to the transmitter(s) being operated by private or leased wire line of fixed

radio circuits, provided the requirements of § 90.463 are met.

(b) No telephone position in the public, switched, telephone network will be treated as a dispatch point within the meaning or intent of this section.

(c) Operation of transmitting facilities from dispatch points is permitted only when the control operator at a fixed control point in the system is on duty and at no other time.

§ 90.469 Unattended operation.

(a) Subject to the provisions of §§ 90.243, 90.245, and 90.247, mobile relay, fixed relay, and mobile repeater stations are authorized for unattended operation; and the transmitter control point requirements set out at §§ 90.463 through 90.465 shall not apply.

(b) Self-activated transmitters may be authorized for unattended operation where they are activated by either electrical or mechanical devices, provided the licensee adopts reasonable means to guard against malfunctions and harmful interference to other users.

§ 90.471 Points of operation in internal systems.

The transmitting facilities of the licensee may be operated from fixed positions located on premises controlled by the licensee. The fixed position may be part of a private telephone exchange or it may be any position in a closed or limited access communication facility intended to be used by employees of the licensee for internal communication purposes. Operating positions in internal systems are not synonymous with dispatch points (See § 90.467) nor with telephone positions which are part of the public, switched, telephone network; and the scheme of regulation is to be considered and treated as being different. See §§ 90.485 through 90.489.

§ 90.473 Operation of internal systems through licensed fixed control points.

An internal system may be operated under the control and supervision of a control operator stationed at a fixed control point in the system. In such case, the control point must be equipped to permit the control operator to monitor all traffic to and from fixed positions and mobile stations or paging units of the licensee; and the system must be so designed to permit the control operator to either disconnect any operating position in the internal system from the transmitter control circuit or to close the system down entirely at will.

§ 90.475 Operation of internal systems in specially equipped systems.

(a) An internal system need not be designed to meet the requirements of § 90.473. As an alternative, the licensee may meet the following requirements:

(1) All operating positions must be located on premises controlled by the licensee.

(2) Dial-up circuits (in the public, switched, telephone network) may not be employed for transmitter control; and the radio system must be so designed that it may not be accessed from telephone positions within the public, switched, telephone network.

(3) The system must be designed so that upon completion of a transmission, the base station transmitter(s) will close down automatically within 3 seconds.

(4) To guard against malfunctions, the system must also be designed so that the base station(s) will be deactivated by an automatic timing device when a modulated signal is not transmitted for a period of three (3) consecutive minutes.

(5) The system must include automatic monitoring equipment, installed at the base station transmitter site(s), which will prevent the activation of the system when signals of other cochannel stations are present.

§ 90.477 Restrictions on interconnected systems.

(a) As an interim measure, pending further decision in Docket No. 20846, interconnection of private radio systems licensed in the 806–821 MHz and 851–866 MHz bands will be permitted only in accordance with provisions of § 90.389.

(b) Interconnection of facilities in the Radiolocation Radio Service (Subpart F) is not permitted.

(c) In the bands below 800 MHz, interconnection of facilities licensed in the Special Emergency Radio Service (Subpart C), the Business and Special Industrial Radio Services (Subpart D), and the Automobile Emergency and Taxicab Radio Services (Subpart E) will be permitted only where the base station site or sites of proposed stations are located 75 miles or more from the designated centers of the following urbanized areas: Provided, this limitation shall not apply to medical emergency systems licensed in the Special Emergency Radio Service in the 450–470 MHz bands.

Urbanized area	North latitude	West longitude
New York, N.Y.-northeastern N.J	40°45'06"	73°59'39"
Los Angeles-Long Beach, Calif	34°03'15"	118°14'28"
Chicago, Ill	41°52'28"	87°38'22"
Philadelphia, Pa.-New Jersey	39°56'58"	75°09'21"
Detroit, Mich	42°19'48"	83°02'57"
San Francisco-Oakland, Calif	37°46'39"	122°24'40"
Boston, Mass	42°21'24"	71°03'25"
Washington, D.C.-Maryland-Virginia	38°53'51"	77°00'33"
Cleveland, Ohio	41°29'51"	81°41'50"
St. Louis, Mo.-Illinois	38°37'45"	90°12'22"
Pittsburgh, Pa	40°26'19"	80°00'00"
Minneapolis-St. Paul, Minn	44°58'57"	93°15'43"
Houston, Tex	29°45'26"	95°21'37"
Baltimore, Md	39°17'26"	76°36'45"
Dallas, Tex	32°47'09"	96°47'37"
Milwaukee, Wis	43°02'19"	87°54'15"
Seattle-Everett, Wash	47°36'32"	122°20'12"
Miami, Fla	25°46'37"	80°11'32"
San Diego, Calif	32°42'53"	117°09'21"
Atlanta, Ga	33°45'10"	84°23'37"
Cincinnati, Ohio-Kentucky	39°06'07"	84°30'35"
Kansas City, Mo.-Kansass	39°04'56"	94°35'20"
Buffalo, N.Y	42°52'52"	78°52'21"
Denver, Colo	39°44'58"	104°59'22"
San Jose, Calif	37°20'16"	121°53'24"

(d) Additional frequencies shall not be assigned to enable any licensee to employ any preferred method of interconnection, such as the use of two-frequency rather than single-frequency operating methods.

(e) The rules governing interconnection in this Subpart are effective for new systems on October 17, 1978. Licensees of existing systems shall bring their facilities into compliance with the provisions of this Subpart by January 1, 1984.

§ 90.479 Interconnection of radio systems with the facilities of telephone companies.

Subject to the limitations set out at § 90.477 authorized stations may be interconnected with facilities of common carriers, subject to applicable tariffs. Such arrangements must be made by the licensee or the user of the radio facility directly with the common carrier in accordance with applicable tariffs.

§ 90.481 Permissible methods of interconnecting private and public systems of communications.

Subject to the requirements of § 90.483, interconnection may be accomplished either manually; by a control operator stationed at a fixed control point; or automatically, under supervision of a control operator stationed at a fixed control point; or automatically, not under supervision of a control operator at a fixed control point. *Provided, however,* That shared, common, or multiple-licensed radio systems, where the facilities are provided by third parties, may not be interconnected under these rules at the location of the shared or common radio facility or at any other common location. However, interconnection may be accomplished at common locations where systems are not shared, or where systems are shared by eligibles under a cooperative, cost-sharing, nonprofit arrangement, with the costs prorated on an equitable basis among the users, and where third party in-

volvement is limited to the sale or lease of the equipment and to incidental maintenance. Interconnection at a common location under these rules is not permitted for such popular sharing arrangements where third parties are involved as the so-called community repeater arrangements. *Provided further,* That any direct electrical connection to the telephone network shall comply with applicable tariffs and with Part 68 of the Commission's Rules. (See § 90.5.)

§ 90.483 Special requirements pertaining to the methods of interconnection.

(a) Where the system is interconnected manually, all transmissions, regardless of their point of origin, must be:

(1) Directed to, and received and processed by a control operator stationed at a fixed control point in the licensee's system of communication;

(2) Manually patched by the control point operator using some form of manual switching device or circuitry; and

(3) Monitored by the control operator to assure that the transmission is permissible and that the system is used for purposes and in ways consistent with the service in which the licensee's system of communication is authorized.

(b) Where the system is interconnected automatically, but under supervision by the licensee's control operator, the following conditions must be met:

(1) The control operator must be stationed at a fixed control point in the licensee's system of communication.

(2) All transmissions, regardless of their point of origin, must be monitored by the control operator to assure that the licensed system is being used in permissible ways; for permissible purposes; by persons having a need to communicate on the business of the licensee or in carrying out functions or activities of the licensee.

(3) The system must include automatic monitoring equipment, installed at the base station transmitter site(s), which will prevent the activation of the system when signals of other cochannel stations are present.

(c) Where the system is interconnected automatically, but is not under supervision by the licensee's control operator, as in subparagraph (b), above, the following conditions must be met:

(1) The system shall include automatic monitoring equipment, installed at the base station transmitter site(s), which will prevent the activation of the system when signals of other cochannel stations are present.

(2) The system shall be so designed that initial access to it from points within the public, switched telephone network will result solely in the transmission of an alerting signal. The alerting signal shall not exceed three (3) seconds in duration after which the base station transmitter(s) shall close down. Further transmissions of signals over the licensee's system shall not take place until it is activated by an acknowledgment signal from a mobile station of the licensee.

(3) The operator of the mobile station must have the ability to control the system in accordance with the following criteria:

(i) In two-frequency systems, the mobile operator must have the ability to terminate communications from points within the public, switched, telephone network at will; and the mobile equipment must be designed to permit this.

(ii) In single-frequency systems, equipment shall be installed at the base station(s) which will limit any single transmission from within the public, switched, telephone network to 30 seconds and which, in turn, will activate the base station receiver(s) which will monitor the operating frequency for a period of not less than 3 seconds. The mobile station shall be so equipped to permit the mobile operator to terminate communications during the three (3) second monitoring period, if such termination is necessary.

(4) A timer shall be installed at the base station transmitter(s) which will limit communications to three (3) minutes. After the three (3) minutes, the system shall close down, with all circuits between the base station and the public, switched, telephone network disconnected.

PAGING OPERATIONS

§ 90.485 One-way paging operations in the 806–821 MHz and 851–866 MHz bands.

Except as provided at § 90.385(c) of the rules, systems of communication licensed in the 806–821 MHz and 851–866 MHz bands may not be employed for either tone only or tone and voice paging operations.

§ 90.487 One-way paging operations in the bands below 512 MHz.

(a) Subject to specific prohibition or restriction by rule provisions governing the radio service in which a licensee's radio system is authorized, tone only and tone and voice paging operations are permitted:

(1) Where the signals and messages are transmitted by a control operator of the licensee stationed at a licensed control point in the licensee's system of communication.

(2) Where the signals and messages are transmitted from an operating position within an internal system of communication which meets the tests of §§ 90.471 through 90.475.

(3) Where the signals and messages are transmitted from a dispatch point within the licensee's system of communication, as defined at § 90.7.

(b) Systems employing dial-up circuits (§ 90.461(c)) may be used in one-way paging operations, but only where the paging signals are transmitted as provided at subparagraph (a)(1) of this section.

(c) Paging signals, as such, may not be transmitted from telephone positions in the public, switched, telephone network, notwithstanding the fact that the radio system employed may be interconnected with the public telephone network and meet the conditions set out at §§ 90.477–90.483: *Provided, however,* Signaling employed to initiate or maintain communications in an interconnected system or to alert a mobile unit that it is being called or for any like purpose, except for one-way paging signalling as such, are permissible and are not excluded by the provision of this section.

Subpart P—Chicago Land Mobile Spectrum Management

§ 90.491 Scope.

This subpart sets forth special provisions for the filing of applications for authority to operate new or modified radio facilities in the Chicago region and the Chicago land mobile spectrum management district.

§ 90.493 Chicago region.

The Chicago Region is defined to consist of the counties listed below:

ILLINOIS

1. Boone.
2. Bureau.
3. Carroll.
4. Champaign.
5. Christian.
6. Clark.
7. Coles.
8. Cook.
9. Cumberland.
10. De Kalb.
11. De Witt.
12. Douglas.
13. Du Page.
14. Edgar.
15. Ford.
16. Fulton.
17. Grundy.
18. Henry.
19. Iroquois.
20. Jo Daviess.
21. Kane.
22. Kankakee.
23. Kendall.
24. Knox.
25. Lake.
26. La Salle.
27. Lee.
28. Livingston.
29. Logan.
30. Macon.
31. Marshall.
32. Mason.

33. McHenry.
34. McLean.
35. Menard.
36. Mercer.
37. Moultrie.
38. Ogle.
39. Peoria.
40. Platt.
41. Putnam.
42. Rock Island.
43. Sangamon.
44. Shelby.
45. Stark.
46. Stephenson.
47. Tazewell.
48. Vermilion.
49. Warren.
50. Whiteside.
51. Will.
52. Winnebago.
53. Woodford.

INDIANA

1. Adams.
2. Allen.
3. Benton.
4. Blackford.
5. Boone.
6. Carroll.
7. Cass.
8. Clay.
9. Clinton.
10. De Kalb.
11. Delaware.
12. Elkhart.
13. Fountain.
14. Fulton.
15. Grant.
16. Hamilton.
17. Hancock.
18. Hendricks.
19. Henry.
20. Howard.
21. Huntington.
22. Jasper.
23. Jay.
24. Kosciusko.
25. Lake.
26. Lagrange.
27. La Porte.
28. Madison.
29. Marion.
30. Marshall.
31. Miami.
32. Montgomery.
33. Morgan.
34. Newton.
35. Noble.
36. Owen.
37. Parke.
38. Porter.
39. Pulaski.
40. Putnam.
41. Randolph.
42. St. Joseph.
43. Starke.
44. Steuben.
45. Tippecanoe.
46. Tipton.
47. Vermillion.
48. Vigo.
49. Wabash.
50. Warren.
51. Wells.
52. White.
53. Whitley.

IOWA

1. Cedar.
2. Clinton.
3. Dubuque.
4. Jackson.
5. Jones.
6. Muscatine.
7. Scott.

MICHIGAN

1. Allegan.
2. Barry.
3. Berrien.
4. Branch.
5. Calhoun.
6. Cass.
7. Clinton.
8. Eaton.
9. Hillsdale.
10. Ingham.
11. Ionia.
12. Jackson.
13. Kalamazoo.
14. Kent.
15. Lake.
16. Mason.
17. Mecosta.
18. Montcalm.
19. Muskegon.
20. Newaygo.
21. Oceana.
22. Ottawa.
23. St. Joseph.
24. Van Buren.

OHIO

1. Defiance.
2. Mercer.
3. Paulding.
4. Van Wert.
5. Williams.

WISCONSIN

1. Adams.
2. Brown.
3. Calumet.
4. Columbia.
5. Dane.
6. Dodge.
7. Door.
8. Fond du Lac.
9. Grant.
10. Green.
11. Green Lake.
12. Iowa.
13. Jefferson.
14. Juneau.
15. Kenosha.
16. Kewaunee.
17. Lafayette.
18. Manitowoc.
19. Marquette.
20. Milwaukee.
21. Outagamie.
22. Ozaukee.
23. Racine.
24. Richland.
25. Rock.
26. Sauk.
27. Sheboygan.
28. Walworth.
29. Washington.
30. Waukesha.
31. Waupaca.
32. Waushara.
33. Winnebago.

§ 90.495 Applications.

Applicants for new base, mobile, or fixed stations on frequencies below 950 MHz (excluding applications in the Radiolocation Service) and located in the Chicago Region, as defined in § 90.493, and licensees proposing to modify renew, or assign existing authorizations for such stations located in the Chicago Region shall submit Form 425.

§ 90.493 Special Provisions Relating to frequency assignments in the Chicago region.

(a) The table below reflects the basic frequency assignment methodology for use in the Chicago Region. Category I consists of the Police and Fire Radio Services and their present frequencies, Category II consists of other radio services and their frequencies:

CATEGORY I

Police Radio Service
Fire Radio Service

CATEGORY II

GROUP A

Forestry-Conservation Radio Service
Highway Maintenance Radio Service
Local Government Radio Service
Special Emergency Radio Service

GROUP B

Power Radio Service
Telephone Maintenance Radio Service
Railroad Radio Service

GROUP C

Petroleum Radio Service
Forest Products Radio Service
Manufacturers Radio Service
Relay Press Radio Service
Motion Picture Radio Service
Automobile Emergency Radio Service
Business Radio Service
Taxicab Radio Service
Motor Carrier Radio Service
Special Industrial Radio Service

(b) Frequencies in Category I are available only to those who establish eligibility in that Category. Frequencies in Category II are available to all persons who establish eligibility in Category II; and are also available to Category I eligibles on a secondary basis.

(c) To the extent practicable, frequencies from the service within which an applicant has established eligibility will be assigned to that applicant. If no suitable frequency is available, then a search will be made of frequencies of other services in the same group as the applicant. Access to the frequencies of a different group will be permitted only on a case-by-case basis and only when no suitable frequency is available in the group in which eligibility is established.

(d) Where services which presently share frequencies are in different categories or groups, the shared frequencies will only be available to the lower priority category or group; except for the eleven low band frequencies shared by police and local government which go to Category I. Licensees who presently operate on these frequencies may continue to do so even though

the frequencies do not appear in their eligibility pool.

(e) The eligibility, permissible communications, points of communications, technical requirements and assignment limitations reflected in the various subparts of this part will also govern in the Chicago Region. Station limitations for the service in which licensee eligibility is established will govern the use of a station even though the frequency assigned may not be from the service in which eligibility was established; except in the case of mobile relay stations which will only be permitted on frequencies previously available for mobile relay use.

(f) Frequency coordination procedures of Section 90.175 are required in the Chicago region after August 31, 1977.

NOTE.—The above frequency assignment methodology for inter-service sharing will not be implemented until further notice by the Commission.

Subpart Q—Developmental Operation

§ 90.501 Scope.

This subpart contains the procedures and requirements for the filing of applications for developmental licenses. It includes special requirements related to developmental operation, restrictions on operations, and special reports required when the development operation is to seek operational data or techniques directed toward the extension of that service.

§ 90.503 Eligibility.

Those persons who are eligible to operate stations in services under this part on a regular basis are also eligible to obtain an authorization for developmental operation in those particular radio services.

§ 90.505 Showing required.

(a) Except as provided in paragraph (b) of this section, each application for developmental operation shall be accompanied by a showing that:

(1) The applicant has an organized plan of development leading to a specific objective;

(2) The actual transmission by radio is essential to proceed beyond the present stage of the program;

(3) The program has reasonable promise of substantial contribution to the expansion or extension of the radio art, or is investigating new unexplored concepts in radio transmission and communications;

(4) The program will be conducted by qualified personnel;

(5) The applicant is legally and financially qualified, and possesses adequate technical facilities to conduct the proposed program; and

(6) The public interest, convenience, and necessity will be served by the proposed operation.

(b) The provisions of paragraph (a) of this section do not apply when an application is made for developmental operation solely for the reason that the frequency requested is restricted to such developmental use.

§ 90.507 Limitations on use.

Stations used for developmental operation shall conform to all technical and operating requirements of Subparts I and N of this part, unless specifically exempted in the instrument of authorization.

§ 90.509 Frequencies available for assignment.

Stations engaged in developmental operation may be authorized to use a frequency or frequencies available in the service in which they propose to operate. The number of channels assigned will depend upon the specific requirements of the developmental program and the number of frequencies available in the particular geographical area where the station is to operate.

§ 90.511 Interference.

The operation of any station engaged in developmental work shall not cause harmful interference to the operation of stations regularly licensed under any part of the Commission's rules.

§ 90.513 Special provisions.

(a) The developmental program as described by the application for authorization shall be followed unless the Commission shall otherwise direct.

(b) Where some phases of the developmental program are not covered by the general rules in this chapter and the rules in this part, the Commission may specify additional requirements or conditions as deemed necessary in the public interest, convenience, or necessity.

(c) The Commission may, from time to time, require a station engaged in developmental work to conduct special tests which are reasonable and desirable to the authorized developmental program.

§ 90.515 Change or cancellation of authorization without hearing.

Every application for authority to engage in developmental operation shall be accompanied by a statement signed by the applicant in which it is agreed that any authorization issued pursuant thereto will be accepted with the express understanding of the applicant that it is subject to change in any of its terms or to cancellation in its entirety at any time, upon reasonable notice but without a hearing, if, in the opinion of the Commission, circumstances should so require.

§ 90.517 Report of operation.

A report on the results of a developmental program shall be filed with and made a part of each application for renewal of authorization. In cases where no renewal is requested, such report shall be filed within 60 days of the expiration of such authorization. Matters which the applicant does not wish to disclose publicly may be so labeled; they will be used solely for the Commission's information, and will not be publicly disclosed without permission of the applicant. The report shall include comprehensive and detailed information on:

(a) The final objective.

(b) Results of operation to date.

(c) Analysis of the results obtained.

(d) Copies of any published reports.

(e) Need for continuation of the program.

(f) Number of hours of operation on each frequency.

This report is not required if the sole reason for the developmental authorization is that the frequency of operation is restricted to developmental use only.

Subpart R—Emergency Communications Pursuant to the Industrial Communications Emergency Plan (ICEP) and the Land Transportation Industries Communications Emergency Plan (LATICEP)

§ 90.525 Industrial Communications Emer- gency Plan (ICEP).

(a) *Scope and objectives.* This section contains the rules and regulations providing for emergency operations for all Industrial Radio Service Licensees of the Federal Communications Commission, and an Industrial Communications Emergency Plan (ICEP) prepared pursuant to and by the authority of Sections 1, 4(i), 301, 303, 307, 308, 309, 312, 316, 318, 319, and 606 of the Communications Act of 1934 as amended, and Executive Order 11490, as amended. The objective of this subpart is to provide for the development of detailed communications plans containing the designation of facilities, mutually compatible operational arrangements, procedures, and interconnecting facilities, for the continued operation of industrial radio stations on a voluntary, organized basis during times of war, grave national crisis, or other National, State, or Operational (Local) emergency situations.

(b) *Industrial communications emergency plan (ICEP) defined.* The Industrial Communications Emergency Plan (ICEP) is a plan containing

procedures for the development of detailed communications plans of Industrial Radio Service licensees based on essential communications requirements of industry, including communications with interested Government Agencies during emergencies on a National, State, or Operational (Local) Area level.

(c) *Emergency situation.* An emergency situation is a situation posing a threat to the safety of life and/or property on a National, State, or Operational (Local) level.

(d) *Activation and termination.* In an emergency situation communications elements of the ICEP may be activated and terminated by competent authorities as defined in the Detailed Operational ICEPs.

(e) *National, State, and local emergency operation.* Detailed data, information, and instructions for emergency operation of mutually compatible facilities, systems, and arrangements will be set forth in the Detailed Operational ICEPs which are considered a supplement to the ICEP.

(f) *Participation of General Mobile Radio Service licensees.* Industrial entities may utilize their General Mobile Radio Service Class A facilities, licensed to them under Section 95.41(a) of the Commission's Rules, in the operation of their own Detailed Operational Industrial Communications Emergency Plans as developed in accordance with the procedures established in this subpart.

(g) *Emergency Communications Authorization (ECA).* (1) A radio station licensee in any industry covered by the Industrial Communications Emergency Plan (ICEP) may be granted an Emergency Communications Authorization (ECA) by the Federal Communications Commission. Each ECA shall remain in effect concurrently with the terms of the approved Detailed Operational Industrial Communications Emergency Plans provided:

(2) The licensee functioning within the terms of the ECA has demonstrated his willingness to cooperate with others by agreeing to provide service or interconnection as part of a communication emergency plan.

(3) The licensee is included in an FCC approved intra-company plan to utilize its radio facilities as emergency backup for other communications services used by the licensee.

(4) An ECA will be issued to each industrial entity for each communications system plan approved by the Commission.

(5) Any industrial radio service participating in the ICEP may withdraw from participation by giving thirty (30) days written notice and by submitting his Emergency Communications Authorization (ECA) to the Federal Communications Commission for cancellation.

(h) *Tests of approved interconnecting systems and facilities.* After detailed emergency communication systems plans are completed, or segments of the system are completed, system operational tests may be necessary. When deemed necessary, these tests shall be conducted as specified in the approved operational plans. Results of these tests shall be furnished to the FCC Engineer in Charge (EIC), the Chief, Emergency Communications Division of the FCC, and to others concerned. These tests would be used as training exercises for personnel at all levels.

§ 90.527 Land Transportation Industries Communications Emergency Plan (LATICEP).

(a) *Scope and objective.* This section applies to those stations licensed under this part and operating in a system for which a National Defense Emergency Authorization has been issued. The section provides for operation of stations within the United States during a grave national crisis or war. The objective is to provide for flexible operation of communications equipment during such an emergency to fulfill emergency communication requirements and needs.

(b) *Definition of terms.* (1) National Defense Emergency Authorization (NDEA). A National Defense Emergency Authorization is an authorization issued by the Federal Communications Commission to the licensees of land transportation stations, subject to the provisions of this part, for operation in accordance with the Interim Basic Land Transportation Industries Communications Emergency Plan (LATICEP) including the annexes and supplements to that plan.

(2) *Emergency action notification.* The Emergency Action Notification is the notice (with or without an Attack Warning) to all licensees and regulated services of the Federal Communications Commission and to the general public of the existence of an Emergency Action Condition. The Emergency Action Notification is released upon direction of the President of the United States and is disseminated only via the Emergency Action Notification System.

(3) *Emergency action condition.* The Emergency Action Condition is the period of time between the transmission of an Emergency Action Notification and the transmission of the Emergency Action Condition Termination.

(4) *Emergency action notification system.* The Emergency Action Notification System is the system by which all licensees and regulated services of the Federal Communications Commission, and the general public, are notified (with or without an Attack Warning) of the existence of an Emergency Action Condition resulting from a grave national crisis or war. The Emergency Action Notification System consists only of the following approved facilities, systems, and arrangements:

(i) *First method.* From the President of the United States via the White House Communications Agency to the Associated Press (AP) and United Press International (UPI); thence via automatic selective switching and teletype Emergency Action Notification to all standard, FM, and television broadcast and other stations (including Land Transportation stations) subscribing to the AP and UPI Radio Wire Teletype Networks.

(ii) *Second method.* From the President of the United States via the White House Communications Agency to specified control points of the nationwide commercial Radio and Television Broadcast Networks, the American Telephone and Telegraph Co. and other specified points via a dedicated teletypewriter network; thence to all affiliates via any available commercial Radio and Television internal network alerting facilities.

(iii) *Third method.* Off-the-air monitoring of a standard, FM, or television broadcast station by other standard, FM, and television broadcast stations and FCC licensees (including Land transportation licensees) for receipt of the Emergency Action Notification. All broadcast station licensees are required to install, maintain, and operate radio receiving equipment for receipt of the Emergency Action Notification at this level.

(iv) *Fourth method.* Off-the-air monitoring of standard, FM, and TV broadcast stations by the general public who are listening or viewing or whose receivers can be activated by standardized selective signaling transmitted by said stations.

(5) *Emergency action condition termination.* The Emergency Action Condition Termination is the notice to all licensees and regulated services of the Federal Communications Commission and to the general public of the termination of an Emergency Action Condition. The Emergency Action Condition Termination is released upon direction of the President of the United States and is disseminated only via the Emergency Action Notification System.

(c) *Emergency operation.* A National Defense Emergency Authorization will be issued on a system basis by the Commission to those licensees who are engaged in essential activities for which an approved National Industry Advisory Committee Emergency Plan has been adopted, provided, the licensee has submitted to the Commission a certification of willingness to participate in and conform to the emergency

communications plan applicable to his stations licensed under this part for which coverage is desired, has certified thereon a willingness to interconnect facilities where necessary with those of similar licensees and to cooperate with such licensees in providing emergency communications. Once issued, a National Defense Emergency Authorization is effective for each station in the system concurrently with the regular license for that station. A National Defense Emergency Authorization may be terminated by the Commission upon a finding that, for any reason, the facilities are no longer capable of providing effective emergency communications in accordance with the National Industry Advisory Committee Emergency Plan concerned.

(2) Over and above the permissive provisions of all applicable rules and notwithstanding any provisions of this chapter or license restrictions to the contrary, systems covered by a National Defense Emergency Authorization and operated by licensees participating in the Land Transportation Industries Communications Emergency Plan (LATICEP) are authorized to operate in accordance with the provisions of this paragraph under the emergency conditions and for the periods of time specified above:

(i) To share facilities with, or interconnect with, any other communications facilities necessary to accomplish transportation industry's communications requirements where such sharing and/or interconnection is mutually acceptable.

(ii) To use mobile frequencies to provide point-to-point services and to effect tie-ins between established fixed services.

(iii) To use any type of modulation, including multiplex, so long as the occupied bandwidth does not exceed that normally authorized on the frequency involved, and to use any operating power not exceeding the maximum specified under Part 93, subject to mutual resolution of any resulting interference.

(iv) To test periodically any facility established for emergency use under this section.

§ 90.555 Combined frequency listing.

(a) The following table lists for ready reference all frequencies assignable under this part. The letter symbols following each frequency refer to radio services where the frequency is assignable as follows:

INDUSTRIAL SERVICES

IB—Business.
IF—Forest products.
IM—Motion picture.
IP—Petroleum.
IR—Radiolocation.
IS—Special industrial.
IT—Telephone maintenance.
IW—Power.
IX—Manufacturers.
IY—Relay press.

LAND TRANSPORTATION SERVICES

LA—Automobile emergency.
*LI—Interurban passenger.
*LJ—Interurban property.
LR—Railroad.
*LU—Urban passenger.
*LV—Urban property.
LX—Taxicab.

PUBLIC SAFETY SERVICES

PF—Fire.
PH—Highway maintenance.
PL—Local government.
PO—Forestry-conservation.
PP—Police.
PS—Special emergency.

(b) Combined frequency list:

Frequency	Services	Special limitations
Kilohertz		
70-90	IR	Radiolocation.
90-110	IR	Do.
110-130	IR	Do.
530	PU	Travelers' information stations.
1610	PL	Do.
1605-1715	IR	Do.
1610	PP	
1614	IP	Geophysical.
1618	PP	
1626	PP	
1628	IM, IP	Do.
1630	PF	
1634	PP	
1642	PP	
1650	PP	
1652	IM, IP	Do.
1658	PP	
1666	PP	
1674	PP	
1676	IP, IF	Do.
1682	PP	
1690	PP	
1698	PP	
1700	IP, IF	Do.
1706	PP	
1714	PP	
1715-1750	IR	Radiolocation.
1722	PP	
1730	PP	
1750-1800	IR	Do.
2000-3000	PS	Communication with public coast.
2212	PO	
2226	PO	
2236	PO	
2244	PO	
2292	IW, IP, IM, IS	
2326	PP	
2366	PP	
2382	PP	
2390	PP	
2398	IW, IP, IF, IM, IS	
2406	PP	
2414	PP	
2422	PP	
2430	PP	
2442	PP	
2450	PP	
2458	PP	
2466	PP	
2474	PP	
2482	PP	
2490	PP	
2505-3500	PS	State guard.
2726	PS	Do.
2804	PP	Zone, interzone.
2808	PP	Do.
2812	PF	Do.
3201	PS	
3230-3400	IR	Radiolocation.
4383.8	(2)	Alaska emergency frequency.
4637.5	IW, IP, IM, IS	
5135	PP	Zone, interzone.
5140	PP	Do.
5195	PP	Do.
7480	PP	Do.
7805	PP	Do.
7935	PP	Do.
Megahertz		
25.02	IP	Geophysical.
25.04	IP	Oil spill.
25.06	IP	Geophysical.
25.08	IP	Oil spill.
25.10	IP	Geophysical.
25.12	IP	
25.14	IP	
25.16	IP	
25.18	IP	
25.20	IP	
25.22	IP	
25.24	IP	
25.26	IP	
25.28	IP	
25.30	IP	
25.32	IP	
27.43	IB	
27.45	IB	
27.49	IB	Itinerant.
27.51	IB	Low power (2 W).
27.53	IB	Do.
29.71	IF	
29.73	IF	
29.75	IF	
29.77	IF	
29.79	IF	
30.565		Developmental.
Megahertz		
30.58	IS	
30.62	IS	
30.64	IS	
30.66	IP, LM	
30.68	IF	
30.70	IP	
30.72	IF	
30.74	IP, LM	
30.76	IB	
30.78	IP	
30.80	IB	
30.82	IP, LM	
30.84	IB	Low power (2W).
30.86	PO, LM	
30.88	IB	
30.90	PO, LM	
30.92	IB	
30.94	PO, LM	
30.96	IB	
30.98	PO, LM	
31.00	IB	
31.02	PO, LM	
31.04	IB	
31.06	PO, LM	
31.08	LM	
31.10	PO, LM	
31.12	LM	
31.14	PO, LM	
31.16	IB	
31.18	PO	State use.
31.20	IB	
31.22	PO	Do.
31.24	IB	
31.26	PO	Do.
31.28	IS	
31.30	PO	Do.
31.32	IS	
31.34	PO	Do.
31.36	IS	
31.38	PO	Do.
31.40	IS	
31.42	PO	Do.
31.44	IS	
31.46	PO	Do.
31.48	IS	
31.50	PO	Do.
31.52	IS	

*Identified collectively in the combined frequency list as "LM."

Frequency	Services	Special limitations
31.54	PO	Do.
31.56	IS	
31.58	PO	Do.
31.60	IS	
31.62	PO	Do.
31.64	IS	Do.
31.66	PO	Do.
31.68	IS	
31.70	PO	Do.
31.72	IS	
31.74	PO	Do.
31.76	IS	
31.78	PO	Do.
31.80	IS	
31.82	PO	Do.
31.84	IS	
31.86	PO	Do.
31.88	IS	
31.90	PO	Do.
31.92	IS	
31.94	PO	Do.
31.96	IS	
31.98	PO	Do.
31.99–32.0	PL, PP, PF, PH, PO, PS.	Developmental.
33.0–33.1	PL, PP, PF, PH, PO, PS.	Do.
33.02	PH, PS	
33.04	PS	
33.06	PH, PS	
33.08	PS	
33.10	PH, PS	
33.12	IS	Low power (2 W).
33.14	IB	Do.
33.16	IB	Maximum power (100 W).
33.18	IP	
33.20	IP	
33.22	IP	
33.24	IP	
33.26	IP	
33.28	IP	
33.30	IP	
33.32	IP	
33.34	IP	
33.36	IP	
33.38	IP	
33.40	IB	Low power (½ W).
33.42	PF	Low power (10 W).
33.44	PF	
Megahertz		
33.46	PF	Mobile only.
33.48	PF	
33.50	PF	Do.
33.52	PF	
33.54	PF	Do.
33.56	PF	
33.58	PF	Do.
33.60	PF	
33.62	PF	Do.
33.64	PF	
33.66	PF	Do.
33.68	PF	
33.70	PF	
33.72	PF	
33.74	PF	
33.76	PF	
33.78	PF	
33.80	PF	
33.82	PF	
33.84	PF	
33.86	PF	
33.88	PF	
33.90	PF	
33.92	PF	
33.94	PF	
33.96	PF	
33.98	PF	
33.99–34.0		
35.0–35.01	PL, PP, PF, PH, PO, PS.	Developmental.
		Do.
35.02	IB	Low power (2W).
35.04	IB	Itinerant.
35.06	IB	Maximum power (110 W).
35.08	IB	Do.
35.10	IB	Do.
35.12	IB	Do.
35.14	IB	Do.
35.16	IT	Wireline common carrier.
35.18	IB	Maximum power (110 W).
35.28	IS	
35.32	IS	
35.36	IS	
35.40	IS	
35.44	IS	
35.48	IS	
35.52	IS	
35.64	PS	Paging only.
35.68	PS	Do.
35.70	IB	
35.72	IB	
35.74	IS	
35.76	IS	
35.78	IS	
35.80	IS	
35.82	IS	
35.84	IS	
35.86	IS	
35.88	IB	Maximum power (110 W).
35.90	IB	Do.
35.92	IB	Do.
35.94	IB	
35.96	IB	
35.98	IB	
35.99–36.0		Developmental.
37.0–37.01		Do.
37.02	PP	Mobile only.
37.04	PP	
37.06	PP	
37.08	PP	
37.10	PL, PP	
37.12	PP	
37.14	PP	
37.16	PP	
37.18	PL, PP	
37.20	PP	
37.22	PP	
37.24	PP	
37.26	PL, PP	
37.28	PP	
37.30	PP	
37.32	PP	
37.34	PP	
37.36	PP	
37.38	PP	
37.40	PP	
37.42	PP	
37.44	IF	
37.46	IW	
37.48	IW	
37.50	IW	
37.52	IW	
37.54	IW	
37.56	IW	
37.58	IW	
37.60	IW	Interconnected utility systems.
37.62	IW	
37.64	IW	
37.66	IW	
37.68	IW	
Megahertz		
37.70	IW	
37.72	IW	
37.74	IW	
37.76	IW	
37.78	IW	
37.80	IW	
37.82	IW	
37.84	IW	Do.
37.86	IW	
37.88	IF	
37.90	PH, PS	
37.92	PH	
37.94	PH, PS	
37.96	PH	
37.98	PH, PS	
37.99–38.0	PL, PP, PF, PH, PO, PS.	Developmental.
39.0–39.01	PL, PP, PF, PH, PO, PS.	Do.
39.02	PP	
39.04	PP	
39.06	PL, PP	Low power (2 W).
39.08	PP	
39.10	PL, PP	
39.12	PP	
39.14	PP	
39.16	PP	
39.18	PL, PP	
39.20	PP	
39.22	PP	
39.24	PP	
39.26	PP	Mobile only.
39.28	PP	
39.30	PP	Do.
30.32	PP	
39.34	PP	Do.
39.36	PP	
39.38	PP	Do.
39.40	PP	
39.42	PP	
39.44	PP	
39.46	PP	
39.48	PP	Intersystems operation.
39.50	PL, PP	
39.52	PP	
39.54	PP	
39.56	PP	
39.58	PL, PP	
39.60	PP	
39.62	PP	
39.64	PP	
39.66	PP	Mobile only.
39.68	PP	
39.70	PP	Do.
39.72	PP	
39.74	PP	Do.
39.76	PP	
39.78	PP	Mobile.
39.80	PP	
39.82	PL, PP	
39.84	PP	
39.86	PP	
39.88	PP	
39.90	PL, PP	
39.92	PP	
39.94	PP	
39.96	PP	
39.98	PL, PP	
39.99–40.0	PL, PP, PF, PH, PO, PS.	Developmental.
42.0–42.01	PL, PP, PF, PH, PO, PS.	Do.
42.02	PP	State police.
42.04	PP	Do.
42.06	PP	Do.
42.08	PP	Do.
42.10	PP	Do.
42.12	PP	Do.
42.14	PP	Do.
42.16	PP	Do.
42.18	PP	Do.
42.20	PP	State police (mobile).
42.22	PP	Do.
42.24	PP	Do.
42.26	PP	Do.
42.28	PP	Do.
42.30	PP	Do.
42.32	PP	Do.
42.34	PP	Do.
42.36	PP	State police.
42.38	PP	Do.
42.40	PP	Do.
42.42	PP	Do.
42.44	PP	Do.
42.46	PP	Do.
42.48	PP	Do.
42.50	PP	Do.

Frequency	Services	Special limitations
42.52	PP	Do.
42.54	PP	Do.
42.56	PP	Do.
42.58	PP	Do.
42.60	PP	Do.
42.62	PP	Do.
Megahertz		
42.64	PP	Do.
42.66	PP	State police (mobile).
42.68	PP	Do.
42.70	PP	Do.
42.72	PP	Do.
42.74	PP	Do.
42.76	PP	Do.
42.78	PP	Do.
42.80	PP	State police.
42.82	PP	Do.
42.84	PP	Do.
42.86	PP	Do.
42.88	PP	Do.
42.90	PP	Do.
42.92	PP	Do.
42.94	PP	Do.
42.96	IB	Maximum power (100 W).
42.98	IB	Low power (2 W).
43.00	IB	Maximum power (110 W).
43.02	IS	
43.04	IS	Itinerant.
43.06	IS	
43.08	IS	
43.10	IS	
43.12	IS	
43.14	IS	
43.16	IT	
43.18	IS	
43.28	IS	
43.32	IS	
43.36	IS	
43.40	IS	
43.44	IS	
43.48	IS	
43.52	IS	
43.64	PS	1-way paging.
43.68	PS	Do.
43.70	LM	Operation between urban areas.
43.72	LM	Do.
43.74	LM	Do.
43.76	LM	Do.
43.78	LM	Do.
43.80	LM	Do.
43.82	LM	Do.
43.84	LM	Do.
43.86	LM	Do.
43.88	LM	Do.
43.90	LM	Do.
43.92	LM	Do.
43.94	LM	Do.
43.96	LM	Do.
43.98	LM	Do.
44.00	LM	Do.
44.02	LM	Do.
44.04	LM	For operation between urban areas.
44.06	LM	Do.
44.08	LM	Do.
44.10	LM	Do.
44.12	LM	Do.
44.14	LM	Do.
44.16	LM	Do.
44.18	LM	Do.
44.20	LM	Do.
44.24	LM	Do.
44.26	LM	Do.
44.28	LM	Do.
44.30	LM	Do.
44.32	LM	Do.
44.34	LM	Do.
44.36	LM	Do.
44.38	LM	Do.
44.40	LM	Do.
44.42	LM	Do.
44.44	LM	Do.
44.46	LM	Operation within an urban area.
44.48	LM	Do.
44.50	LM	Do.
44.52	LM	Do.
44.54	LM	Do.
44.56	LM	Do.
44.58	LM	Do.
44.60	LM	Do.
44.62	PP	State police.
44.64	PO	
44.66	PP	Do.
44.68	PO	
44.70	PP	Do.
44.72	PO	
44.74	PP	Do.
44.76	PO	
44.78	PP	State police (mobile only).
44.80	PO	Do.
44.82	PP	Do.
44.84	PO	
44.86	PP	Do.
44.88	PO	
44.90	PP	Do.
44.92	PO	
Megahertz		
44.94	PP	State police.
44.96	PO	
44.98	PP	Do.
45.00	PO	
45.02	PP	Do.
45.04	PO	
44.46	PP	Do.
45.08	PL	
45.10	PP	
45.12	PL	
45.14	PP	
45.16	PL	
45.18	PP	
45.20	PL	
45.22	PP	
45.24	PL	
45.26	PP	Mobile.
45.28	PL	
45.30	PP	Do.
45.32	PL	
45.34	PP	Do.
45.36	PL	
45.38	PP	Do.
45.40	PL	
45.42	PP	
45.44	PL	
45.46	PP	
45.48	PL	
45.50	PP	
45.52	PL	
45.54	PP	
45.56	PL	
45.58	PP	
45.60	PL	
45.62	PP	
45.64	PL	
45.66	PP	
45.68	PH	
45.70	PP	
45.72	PP	
54.74	PF	Do.
45.76	PH	
45.78	PP	Do.
45.80	PH	
45.82	PP	Do.
45.84	PH	
45.86	PP	Intersystem operation.
45.88	PF	Do.
45.90	PP	
45.92	PS	
45.94	PP	
45.96	PS	
45.98	PP	
46.00	PS	
46.02	PP	
46.04	PS	
46.06	PF	
46.08	PF	
46.10	PF	
46.12	PF	
46.14	PF	
46.16	PF	
46.18	PF	
46.20	PF	
46.22	PF	Mobile.
46.24	PF	Do.
46.26	PF	Do.
46.28	PF	Do.
46.30	PF	Maximum power 10 W.
46.32	PF	Mobile.
46.34	PF	Do.
46.36	PF	
46.38	PF	
46.40	PF	
46.42	PF	
46.44	PF	
46.46	PF	
46.48	PF	
46.50	PF	
46.52	PL	
46.54	PL	
46.56	PL	
46.58	P	
47.02	PH	State use.
47.04	PH	Do.
47.06	PH	Do.
47.08	PH	Do.
47.10	PH	Do.
47.12	PH	Do.
47.14	PH	Do.
47.16	PH	Do.
47.18	PH	Do.
47.20	PH	Do.
47.12	PH	Do.
47.14	PH	Do.
47.16	PH	Do.
47.18	PH	Do.
47.20	PH	Do.
47.22	PH	Do.
47.24	PH	Do.
47.26	PH	Do.
47.28	PH	Do.
47.30	PH	Do.
47.32	PH	Do.
47.34	PH	Do.
Megahertz		
47.36	PH	Do.
47.38	PH	Do.
47.40	PH	Do.
47.42	PS	Disaster relief.
47.44	IS	
47.46	PS	
47.48	IS	
47.50	PS	
47.52	IS	
47.54	PS	
47.56	IS	
47.58	PS	
47.60	IS	
47.62	PS	
47.64	IS	
47.66	PS	
47.68	IS	
47.70	IW	
47.72	IW	
47.74	IW	
47.76	IW	
47.78	IW	
47.80	IW	
47.82	IW	
47.84	IW	
47.86	IW	
47.88	IW	
47.90	IW	
47.92	IW	
47.94	IW	
47.96	IW	
47.98	IW	
48.00	IW	
48.02	IW	
48.04	IW	
48.06	IW	
48.08	IW	
48.10	IW	
48.12	IW	
48.14	IW	
48.16	IW	
48.18	IW	
48.20	IW	
48.22	IW	
48.24	IW	
48.26	IW	
48.28	IW	
48.30	IW	
48.32	IW	
48.34	IW	
48.36	IW	
48.38	IW	
48.40	IW	

Frequency	Services	Special limitations
48.42	IW	
48.44	IW	
48.46	IW	
48.48	IW	
48.50	IW	
48.52	IW	
48.54	IW	
48.56	IP, IF	
48.58	IP, IF	
48.60	IP, IF	
48.62	IP, IF	
48.64	IP, IF	
48.66	IP, IF	
48.68	IP, IF	
48.70	IP, IF	
48.72	IP, IF	
48.74	IP, IF	
48.76	IP, IF	
48.78	IP, IF	
48.80	IP, IF	
48.82	IP, IF	
48.84	IP, IF	
48.86	IP, IF	
48.88	IP, IF	
48.90	IP, IF	
48.92	IP, IF	
48.94	IP, IF	
48.96	IP, IF	
48.98	IP, IF	
49.00	IP, IF	
49.02	IP, IF	
49.04	IP, IF	
49.06	IP, IF	
49.08	IP, IF	
49.10	IP, IF	
49.12	IP, IF	
49.14	IP, IF	
49.16	IP, IF	
49.18	IP, IF	
49.20	IP, IF	
49.22	IP, IF	
49.24	IP, IF	
49.26	IP, IF	
49.28	IP, IF	
49.30	IP, IF	
49.32	IP, IF	
49.34	IP, IF	
49.36	IP, IF	
49.38	IP, IF	
49.40	IP, IF	
Megahertz		
49.46	IP,IF	
49.44	IP, IF	
49.46	IP, IF	
49.48	IP, IF	
49.50	IP, IF	
49.52	IS	
49.54	IF, IS	
49.56	IS	
49.58	IF, IS	
72.0–76.0	PL, PP, PF, H, PO, PS, IW, IP IF, IM, IY, IS, IB, IX, LM, LR.	Fixed, non-interference with TV channels 4 and 5.
150.815	IB, LA	IB use limited to Puerto Rico and Virgin Islands.
150.830	LA	
150.845	IB, LA	Do.
150.860	LA	
150.875	IB, LA	Do.
150.890	LA	
150.905	IB, LA	Do.
150.920	LA	
150.935	IB, LA	Do.
150.950	LA	
150.965	IB, LA	Do.
150.980	IP	Oil spill.
150.995	PH, IB	Do.
151.010	PH	
151.025	PH, IB	Do.
151.040	PH	
151.055	PH, IB	Do.
151.070	PH	
151.085	PH, IB	Do.
151.100	PH	
151.115	PH, IB	Do.
151.130	PH	
151.145	PO, IB	Do.
151.160	PO	
151.175	PO, IB	Do.
151.190	PO	
151.205	PO, IB	Do.
151.220	PO	
151.235	PO, IB	Do.
151.250	PO	
151.265	PO, IB	Do.
151.280	PO	
151.295	PO, IB	Do.
151.310	PO	
151.325	PO, IB	Do.
151.340	PO	
151.355	PO, IB	Do.
151.370	PO	
151.385	PO, IB	Do.
151.400	PO	
151.415	PO, IB	Do.
151.430	PO	
151.445	PO, IB	Do.
151.460	PO	
151.475	PO, IB	Do.
151.490	IS	
151.505	IS	Interant use.
151.520	IS	
151.535	IS	
151.550	IS	
151.565	IS	
151.580	IS	
151.595	IS	
151.625	IB	Do.
151.655	IB	Maximum power 110 W.
151.685	IB	Do.
151.715	IB	Do.
151.745	IB	Do.
151.775	IB	Do.
151.805	IB	Do.
151.835	IB	Do.
151.865	IB	Do.
151.895	IB	Do.
151.925	IB	
151.955	IB	
151.985	IT	Communications common carrier.
152.0075	PS	1-way paging.
152.270	LX	
152.285	LX	For use within SMA's over 50,000.
152.300	IB, LX	For LX use within SMA's over 50,000.
152.315	LX	For use within SMA's over 50,000.
152.330	LX	
152.345	LX	Do.
152.360	IB, LX	For LX use within SMA's over 50,000.
152.375	LX	For use within SMA's over 50,000.
152.390	LX	Do.
152.405	LX	Do.
152.420	IB, LX	For LX use within SMA's over 50,000.
152.435	LX	For use within SMA's over 50,000.
152.450	LX	
152.465	IF, IS, LX	
152.480	IF, IS, IB	1B 1-way paging.
152.870	IM, IS	
Megahertz		
152.885	IS	
152.900	IM, IS	
152.915	IS	
152.930	IM, IS	
152.945	IS	
152.960	IM, IS	
152.975	IS	
152.990	IM, IS	
153.005	IS	
153.020	IM, IS	
153.035	IP, IS	
153.050	IP, IF, IX	
153.065	IP, IF, IX	
153.080	IP, IF, IX	
153.095	IP, IF, IX	
153.110	IP, IF, IX	
153.125	IP, IF, IX	
153.140	IP, IF, IX	
153.155	IP, IF, IX	
153.170	IP, IF, IX	
153.185	IP, IF, IX	
153.200	IP, IF, IX	
153.215	IP, IF, IX	
153.230	IP, IF, IX	
153.245	IP, IF, IX	
153.260	IP, IF, IX	
153.275	IP, IF, IX	
153.290	IP, IF, IX	
153.305	IP, IF, IX	
153.320	IP, IF, IX	
153.335	IP, IF, IX	
153.350	IP, IF, IX	
153.365	IP, IF, IX	
153.380	IP, IF, IX	
153.395	IP, IF, IX	
153.410	IW	
153.425	IW, IP, IF	See limitations for precluded areas.
153.440	IW, IP, IF	Do.
153.455	IW, IP, IF	Do.
153.470	IW	
153.485	IW, IP, IF	Do.
153.500	IW, IP, IF	Do.
153.515	IW, IP, IF	Do.
153.530	IW	
153.545	IW, IP, IF	Do.
153.560	IW, IP, IF	Do.
153.575	IW, IP, IF	Do.
153.590	IW	
153.605	IW, IP, IF	Do.
153.620	IW, IP, IF	Do.
153.635	IW, IP, IF	Do.
153.650	IW	
153.665	IW, IP, IF	Do.
153.680	IW, IP, IF	Do.
153.695	IW	
153.710	IW	
153.725	IW	
153.740	PL	Mobile.
153.755	PL	Do.
153.770	PF	Do.
153.785	PL	Do.
153.800	PL	Do.
153.815	PL	Do.
153.830	PF	Maximum power 10 W.
153.845	PL	Mobile.
153.860	PL	Do.
153.875	PL	Do.
153.890	PF	Do.
153.905	PL	Do.
153.920	PL	Do.
153.935	PL	Do.
153.950	PF	Do.
153.965	PL	Do.
153.980	PL	Do.
153.995	PL	Do.
154.010	PF	Do.
154.025	PL	
154.040	PL	Not available in Puerto Rico and Virgin Islands.
154.055	PL	Do.
154.070	PF	Do.
154.085	PL	Do.
154.100	PL	Do.
154.115	PL	Do.
154.130	PF	Do.
154.145	PF	Do.
154.160	PF	Do.
154.175	PF	Do.
154.190	PF	Do.
154.205	PF	Do.
154.220	PF	Do.
154.235	PF	Do.
154.250	PF	Do.
154.265	PF	Do.
154.280	PF	Do.
154.295	PF	Do.
154.310	PF	Do.

Frequency	Services	Special limitations
154.325	PF	Do.
154.340	PF	Do.
154.355	PF	Do.
154.370	PF	Do.
154.385	PF	Do.
154.400	PF	Do.
Megahertz		
154.415	PF	Do.
154.430	PF	Do.
154.445	PF	Do.
154.45625	PL, IW, IP, IF, IS, IB, IX.	Remote control and telemetry.
154.46375	PL, IW, IP, IF, IS, IB, IX.	Do.
154.47125	PL, IW, IP, IF, IS, IB, IX.	Do.
154.47875	PL, IW, IP, IF, IS, IB, IX.	Do.
154.490	IS	
154.515	IB	Maximum power 110 W.
154.540*	IB	Do.
154.570	IF, IB	Low power, 2 W.
154.585	IP	Oil spill 20 W.
154.600	IF, IB	Low power, 2 W.
154.625	IF, IS, IB	IB 1-way paging.
154.650	PP	Mobile.
154.665	PP	State police.
154.680	PP	Do.
154.695	PP	Do.
154.710	PP	Mobile.
154.725	PP	
154.740	PP	
154.755	PP	
154.770	PP	Do.
154.785	PP	
154.800	PP	
154.815	PP	
154.830	PP	Do.
154.845	PP	
154.860	PP	
154.875	PP	
154.890	PP	Do.
154.905	PP	State police.
154.920	PP	Do.
154.935	PP	Do.
154.950	PP	Mobile.
154.965	PL	
154.980	PL	
154.995	PL	
155.010	PP	
155.025	PL	
155.040	PL	
155.055	PL	
155.070	PP	
155.085	PL	
155.100	PL	
155.115	PL	
155.130	PP	
155.145	PL	
155.160	PS	Adjacent channel coordination required.
155.175	PS	Do.
155.190	PP	
155.205	PS	Do.
155.220	PS	
155.235	PS	Do.
155.250	PP	
155.265	PS	Do.
155.280	PS	
155.295	PS	Do.
155.310	PP	
155.325	PS	Hospital/ ambulance use, coordination required.
155.340	PS	Redition and delivery medical services.
155.355	PS	Hospital/ ambulance use, coordination required.
155.370	PP	
155.385	PS	Do.
155.400	PS	Do.
155.415	PP	
155.430	PP	
155.445	PP	State police.
155.460	PP	Do.
155.475	PP	Nationwide police emergency channel.
155.490	PP	
155.505	PP	State police.
155.520	PP	
155.535	PP	
155.550	PP	
155.565	PP	
155.580	PP	
155.595	PP	
155.610	PP	
155.625	PP	
155.640	PP	
155.655	PP	
155.670	PP	
155.685	PP	
155.700	PP	
155.715	PL	
155.730	PP	
155.745	PL	
155.760	PL	
155.775	PL	
155.790	PP	
Megahertz		
155.805	PL	
155.820	PL	
155.835	PL	
155.850	PP	Mobile.
155.865	PL	
155.880	PL	
155.895	PL	
155.910	PP	Do.
155.925	PL	
155.940	PL	
155.955	PL	
155.970	PP	Do.
155.985	PL	Do.
156.000	PL	Do.
156.015	PL	Do.
156.030	PP	Do.
156.045	PH	Do.
156.060	PH	Do.
156.075	PH	Do.
156.090	PP	Do.
156.105	PH	
156.120	PH	
156.135	PH	
156.150	PP	Do.
156.165	PH	State use not permitted.
156.180	PH	Do.
156.195	PH	Do.
156.210	PP	
156.225	PH	Do.
156.240	PH	Do.
157.450	PS	1-way paging.
157.470	LA	
157.485	LA	
157.500	LA	
157.515	LA	
157.530	LX	
157.545	LX	For use within SMA's over 50,000.
157.560	IB, LX	IB outside, LX inside SMA's (50,000).

Frequency	Services	Special limitations
157.575	LX	For use within SMA's over 50,000.
157.590	LX	
157.605	LX	Do.
157.620	IB, LX	IB outside, LX inside SMA's (50,000).
157.635	LX	For use within SMA's over 50,000.
157.650	LX	
157.665	LX	Do.
157.680	IB, LX	IB outside, LX inside SMA's (50,000).
157.695	LX	For use within SMA's over 50,000.
157.710	LX	
157.725	IF, IS, LX	
157.740	IF, IS, IB	1-way paging.
158.130	IW	
158.145	IW, IP, IF	See limitations for precluded areas.
158.160	IW, IP, IF	Do.
158.175	IW, IP, IF	Do.
158.190	IW	
158.205	IW, IP, IF	Do.
158.220	IW, IP, IF	Do.
158.235	IW, IP, IF	Do.
158.250	IW	
158.265	IW, IP, IF	Do.
158.280	IP, IF, IX	
158.295	IP, IF, IX	
158.310	IP, IF, IX	
158.325	IP, IF, IX	
158.340	IT	Mobile, communications common carrier.
158.355	IP, IF	
158.370	IP, IF	
158.385	IS	
158.400	IS	Itinerant.
158.415	IP, IF, IX	
158.430	IP, IF, IX	
158.445	IP	Oil spill, mobile.
158.460	IF, IS, IB	1-way paging.
158.730	PP	
158.745	PL	
158.760	PL	
158.775	PL	
158.790	PP	
158.805	PL	
158.820	PL	
158.835	PL	
158.850	PP	
158.865	PL	Mobile.
158.880	PL	Do.
158.895	PL	Do.
158.910	PP	Do.
158.925	PL	Do.
158.940	PL	Do.
158.955	PL	Do.
158.970	PP	Do.
Megahertz		
158.985	PH	Mobile, State use not permitted.
159.000	PH	Do.
159.015	PH	Do.
159.030	PP	Mobile.
159.045	PH	Mobile, State use not permitted.
159.060	PH	Do.
159.075	PH	Do.
159.090	PP	
159.105	PH	State use not permitted.
159.120	PH	Do.
159.135	PH	Do.
159.150	PP	
159.165	PH	Do.
159.180	PH	
159.195	PH	
159.210	PP	
159.225	PO	
159.240	PO, IS	IS use in Puerto Rico and Virgin Islands only.
159.255	PO, IS	Do.
159.270	PO, IS	Do.
159.285	PO, IS	Do.
159.300	PO, IS	Do.
159.315	PO, IS	Do.
159.330	PO, IS	Do.
159.345	PO, IS	Do.
159.360	PO, IS	Do.
159.375	PO, IS	Do.
159.390	PO, IS	Do.
159.405	PO, IS	Do.
159.420	PO, IS	Do.
159.435	PO, IS	Do.
159.450	PO	
159.465	PO	
159.480	IP	Oil spill.
159.495	LM	
159.510	LM	
159.525	LM	
159.540	LM	
159.555	LM	
159.570	LM	
159.585	LM	
159.600	LM	
159.615	LM	
159.630	LM	
159.645	LM	
159.660	LM	
159.675	LM	
159.690	LM	
159.705	LM	
159.720	LM	
159.735	LM	
159.750	LM	
159.765	LM	
159.780	LM	
159.795	LM	
159.810	LM	
159.825	LM	
159.840	LM	
159.855	LM	
159.870	LM	
159.885	LM	
159.900	LM	
159.915	LM	
159.930	LM	
159.945	LM	
159.960	LM	
159.975	LM	
159.990	LM	
160.005	LM	
160.020	LM	
160.035	LM	
160.050	LM	
160.065	LM	
160.080	LM	
160.095	LM	
160.110	LM	
160.125	LM	
160.140	LM	
160.155	LM	
160.170	LM	
160.185	LM	
160.200	LM	
160.215	LR	
160.230	LR	
160.245	LR	
160.260	LR	
160.275	LR	
160.290	LR	
160.305	LR	
160.320	LR	
160.335	LR	
160.350	LR	
160.365	LR	
160.380	LR	
160.395	LR	
160.410	IS, LR	IS use in Puerto Rico and Virgin Islands only.
160.425	IS, LR	Do.
160.440	IS, LR	Do.
160.455	IS, LR	Do.
160.470	IS, LR	Do.
160.485	IS, LR	Do.
160.500	IS, LR	Do.
160.515	IS, LR	Do.
Megahertz		
160.530	IS, LR	Do.
160.545	IS, LR	Do.
160.560	IS, LR	Do.
160.575	IS, LR	Do.
160.590	IS, LR	Do.
160.605	IS, LR	Do.
160.620	LR	

Frequency	Services	Special limitations
160.635	LR	
160.650	LR	
160.665	LR	
160.680	LR	
160.695	LR	
160.710	LR	
160.725	LR	
160.740	LR	
160.755	LR	
160.770	LR	
160.785	LR	
160.800	LR	
160.815	LR	
160.830	LR	
160.845	LR	
160.860	LR	
160.875	LR	
160.890	LR	
160.905	LR	
160.920	LR	
160.935	LR	
160.950	LR	
160.965	LR	
160.980	LR	
160.995	LR	
161.010	LR	
161.025	LR	
161.040	LR	
161.055	LR	
161.070	LR	
161.085	LR	
161.100	LR	
161.115	LR	
161.130	LR	
161.145	LR	
161.160	LR	
161.175	LR	
161.190	LR	
161.205	LR	
161.220	LR	
161.235	LR	
161.250	LR	
161.265	LR	
161.280	LR	
161.2	LR	
161.310	LR	
161.325	LR	
161.340	LR	
161.355	LR	
161.370	LR	
161.385	LR	Not available in Puerto Rico and Virgin Islands.
161.400	LR	Do.
161.415	LR	Do.
161.430	LR	Do.
161.445	LR	Do.
161.460	LR	Do.
161.475	LR	Do.
161.490	LR	Do.
161.505	LR	Do.
161.520	LR	Do.
161.535	LR	Do.
161.550	LR	Do.
161.565	LR	Do.
161.610	LR	Grandfather basis only.
163.250	PS	1-way paging.
166.250	PF	Available only within 150 mi of New York City.
169.425	IW, IP, IF, IS	Hydrological or meteorological.
169.450	IW, IP, IF, IS, IB, LR.	Do.
169.475	IW, IP, IF, IS, IB, LR.	Do.
169.500	IW, IP, IF, IS, IB, LR.	Do.
169.525	IW, IP, IF, IS, IB, LR.	Do.
170.150	PF	Available only within 150 mi of New York City.
170.225	IW, IP, IF, IS, IB, LR.	Hydrological or meteorological.
170.250	IW, IP, IF, IS, IB, LR.	Do.
170.275	IW, IP, IF, IS, IB, LR.	Do.
170.300	IW, IP, IF, IS, IB, LR.	Do.
170.325	IW, IP, IF, IS, IB, LR.	Do.
170.425	PO	State use west of Mississippi River.
170.475	PO	State use.
170.575	PO	State use west of Mississippi River.
171.025	IW, IP, IF, IS, IB, LR.	Hydrological or meteorological.
Megahertz		
171.050	IW, IP, IF, IS, IB, LR.	Do.
171.075	IW, IP, IF, IS, IB, LR.	Do.
171.100	IW, IP, IF, IS, IB, LR.	Do.
171.125	IW, IP, IF, IS, IB, LR.	Do.
171.425	PO	State use east of Mississippi River.
171.475	PO	State use west of Mississippi River.
171.575	PO	State use east of Mississippi River.
171.825	IW, IP, IF, IS, IB, LR.	Hydrological or meteorological.
171.850	IW, IP, IF, IS, IB, LR.	Do.
171.875	IW, IP, IF, IS, IB, LR.	Do.
171.900	IW, IP, IF, IS, IB, LR.	Do.
171.925	IW, IP, IF, IS, IB, LR.	Do.
172.225	PO	State use west of Mississippi River.
172.275	PO	State use east of Mississippi River.
172.375	PO	State use west of Mississippi River.
173.20375	PL, IW, IP, IF, IS, IB, IX.	Remote control and telemetry.
173.2100	PL, IW, IP, IF, IS, IB, IX.	Do.
173.225	IM, IY	
173.250	IW, IP, IF	See limitations for precluded areas.
173.275	IM, IY	
173.300	IW, IP, IF	Do.
173.325	IM, IY	
173.350	IW, IP, IF	Do.
173.375	IM, IY	
173.2375	PL, IB, IF, IM, IP, IS, IW.	Remote control and telemetry.
173.2625	Do.	Do.
173.2875	Do.	Do.
173.3125	Do.	Do.
173.3375	Do.	Do.
173.39625	PL, IW, IP, IF, IS, IB, IX.	Remote control and telemetry.
173.390	PL, IW, IP, IF, IS, IB, IX.	Do.
216-220	IW, IP, IF, IS, IB, IX, IT.	Telemetry.
451.025	IW	
451.050	IW	
451.075	IW	
451.100	IW	
451.125	IW	
451.150	IW	
451.175	IW, IP, IF, IM, IT	
451.200	IW	
451.225	IW, IP, IF, IM, IT	
451.250	IW	
451.275	IW, IP, IF, IM, IT	
451.300	IW	
451.325	IW	

Frequency	Services	Special limitations
451.350	IW	
451.375	IW, IP, IF, IM, IT	
451.400	IT	
451.425	IW, IP, IF, IM, IT	
451.450	IT	
451.475	IW, IP, IF, IM, IT	
451.500	IT	
451.525	IW, IP, IF, IM, IT	
451.550	IP, IF	
451.575	IW, IP, IF, IM, IT	
451.600	IP, IF	
451.625	IW, IP, IF	
451.650	IP, IF	
451.675	IW, IP, IF, IM, IT	
451.700	IP, IF	
451.725	IS	
451.750	IP, IF	
451.775	IS	
451.800	IS	
451.825	IS	
451.850	IS	
451.875	IS	
451.900	IS	
451.925	IS	
451.950	IS	
451.975	IS	
452.000	IS	
452.025	IS	
452.050	LX	
452.075	IS	
452.100	LX	
452.125	IS	
452.150	LX	
452.175	IS	
452.200	LX	
452.225	LX	
452.250	LX	
452.275	LX	
452.300	LX	
452.325	LI, LJ, LU, LV, LR.	
452.350	LX	
452.375	LI, LJ, LU, LV, LR.	
452.400	LX	
452.425	LI, LJ, LU, LV, LR.	
452.450	LX	
Megahertz		
452.475	LI,LJ, LU, LV, LR	
452.500	LX	
452.525	LA	Single frequency simplex.
452.550	LA	
452.550	LA	Do.
452.575	LA	Do.
452.600	LA	Do.
452.625	LI, LJ, LU, LV	
452.650	LI, LJ, LU, LV	
452.675	LI, LJ, LU, LV	
452.700	LI, LJ, LU, LV	
452.725	LI, LJ, LU, LV	
452.750	LI, LJ, LU, LV	
452.775	LI, LJ, LU, LV, LR.	
452.800	LI, LJ, LU, LV	
452.825	LI, LJ, LU, LV, LR.	
452.850	LI, LJ, LU, LV	
452.875	LI, LJ, LU, LV, LR.	
452.900	LR	
452.925	LR	
452.950	LR	
452.975	IY	
453.000	IY	
453.025	PL	Highway call box and medical telemetry.
453.050	PL, PP, PF, PH, PO.	
453.075	PL	Do.
453.100	PL, PP, PF, PH, PO.	
453.125	PL	Do.
453.150	PL, PP, PF, PH, PO.	
453.175	PL	Do.
453.200	PL, PP, PF, PH, PO.	
453.225	PL	
453.250	PL, PP, PF, PH, PO.	
453.275	PL	
453.300	PL, PP, PF, PH, PO.	
453.325	PL	
453.350	PL, PP, PF, PH, PO.	
453.375	PL	
453.400	PL, PP, PF, PH, PO.	
453.425	PL	
453.450	PL, PP, PF, PH, PO.	
453.475	PL	
453.500	PL, PP, PF, PH, PO.	
453.525	PL	
453.550	PL, PP, PF, PH, PO.	
453.575	PL	
453.600	PL, PP, PF, PH, PO.	
453.625	PL	
453.650	PL, PP, PF, PH, PO.	
453.675	PL	
453.700	PL, PP, PF, PH, PO.	
453.725	PL	
453.750	PL, PP, PF, PH, PO.	
453.775	PL	
453.800	PL, PP, PF, PH, PO.	
453.825	PL	
453.850	PL, PP, PF, PH, PO.	
453.875	PL	
453.900	PL, PP, PF, PH, PO.	
453.925	PL	
453.950	PL, PP, PF, PH, PO.	
453.975	PL	
454.0–455.0	(2)	
455.0–456.0	(3)	
456.025	IW	Mobile only
456.050	IW	Do.
456.075	IW	Do.
456.100	IW	Do.
456.125	IW	Do.
456.150	IW	Do.
456.175	IW, IP, IF, IM, IT	Do.
456.200	IW	Do.
456.225	IW, IP, IF, IM, IT	Do.
456.250	IW	Do.
456.275	IW, IP, IF, IM, IT	Do.
456.300	IT	Do.
456.325	IT	Do.
456.350	IT	Do.
456.375	IW, IP, IF, IM, IT	Do.
456.400	IT	Do.
456.425	IW, IP, IF, IM, IT	Do.
456.450	IT	Do.
456.475	IW, IP, IF, IM, IT	Do.
456.500	IT	Do.
Megahertz		
456.525	IW, IP, IF, IM, IT	Do.
456.550	IP, IF	Do.
456.575	IW, IP, IF, IM, IT	Do.
456.600	IP, IF	Do.
456.625	IW, IP, IF, IM, IT	Do.
456.650	IP, IF	Do.
456.675	IW, IP, IF, IM, IT	Do.
456.700	IP, IF	Do.
456.725	IS	Do.
456.750	IP, IF	Do.
456.775	IS	Do.
456.800	IS	Base, mobile, fixed.
456.825	IS	Mobile only.
456.850	IS	Do.
456.875	IS	Do.
456.900	IS	Do.
456.925	IS	Do.
456.950	IS	Do.
456.975	IS	Do.
457.000	IS	Do.
457.025	IS	Do.
457.050	LX	Do.
457.075	IS	Do.

Frequency	Services	Special limitations
457.100	LX	Do.
457.125	IS	Do.
457.150	LX	Do.
457.175	IS	Do.
457.200	LX	Do.
457.225	LX	Do.
457.250	LX	Do.
457.275	LX	Do.
457.300	LX	Do.
457.325	LI, LJ, LU, LV, LR.	Do.
457.350	LX	Do.
457.375	LI, LJ, LU, LV, LR.	Do.
457.400	LX	Do.
457.425	LI, LJ, LU, LV, LR.	Do.
457.450	LX	Do.
457.475	LI, LJ, LU, LV, LR.	Do.
457.500	LX	Do.
457.525	IB	Mobile only 2 W.
457.550	IB	Do.
457.575	IB	Do.
457.600	IB	Do.
457.625	LI, LJ, LU, LV	Mobile only.
457.650	LI, LJ, LU, LV	Do.
457.675	LI, LJ, LU, LV	Do.
457.700	LI, LJ, LU, LV	Do.
457.725	LI, LJ, LU, LV	Do.
457.750	LI, LJ, LU, LV	Do.
457.775	LI, LJ, LU, LV	Do.
457.800	LI, LJ, LU, LV	
457.825	LI, LJ, LU, LV, LR.	
457.850	LI, LJ, LU, LV	
457.875	LI, LJ, LU, LV, LR.	
457.900	LR	
457.925	LR	
457.950	LR	
457.975	IY	
458.000	IY	
458.025	PS	Highway call box; medical telemetry.
458.050	PL, PP, PF, PH, PO.	
458.075	PS	Do.
458.100	PL, PP, PF, PH, PO.	
458.125	PS	Do.
458.150	PL, PP, PF, PH, PO.	
458.175	PS	Do.
458.200	PL, PP, PF, PH, PO.	
458.225	PS	
458.250	PL, PP, PF, PH, PO.	
458.275	PS	
458.300	PL, PP, PF, PH, PO.	
458.325	PS	
458.350	PL, PP, PF, PH, PO.	
458.375	PS	
458.400	PL, PP, PF, PH, PO.	
458.425	PS	
458.450	PL, PP, PF, PH, PO.	
458.475	PS	
458.500	PL, PP, PF, PH, PO.	
458.525	PL	
458.550	PL, PP, PF, PH, PO.	
458.575	PL	
458.600	PL, PP, PF, PH, PO.	
458.625	PL	
458.650	PL, PP, PF, PH, PO.	
458.675	PL	
458.700	PL, PP, PF, PH, PO.	
458.725	PL	
458.750	PL, PP, PF, PH, PO.	
458.775	PL	
458.800	PL, PP, PF, PH, PO.	
458.825	PL	
458.850	PL, PP, PF, PH, PO.	
458.875	PL	
458.900	PL, PP, PF, PH, PO.	
458.925	PL	
458.950	PL, PP, PF, PH, PO.	
458.975	PL	
459.000	IP	Oil spill cleanup.
459.0—460.0	(2)	
460.025	PP	
460.050	PP	
460.075	PP	
460.100	PP	
460.125	PP	
460.150	PP	
460.175	PP	
460.200	PP	
460.225	PP	
460.250	PP	
460.275	PP	
460.300	PP	
460.325	PP	
460.350	PP	
460.375	PP	
460.400	PP	
460.425	PP	
460.450	PP	
460.475	PP	
460.500	PP	
460.525	PS	Medical care dispatch.
460.550	PS	Do.
460.575	PF	
460.600	PF	
460.625	PF	
460.650	IB	20 W, airport use.
460.675	IB	Do.
460.700	IB	Do.
460.725	IB	Do.
460.750	IB	Do.
460.775	IB	Do.
460.800	IB	Do.
460.825	IB	Do.
460.850	IB	Do.
460.875	IB	Do.
460.900	IB	110 W, central station protection.
460.925	IB	Do.
460.950	IB	Do.
460.975	IB	Do.
461.000	IB	Do.
461.025	IB	Do.
461.050	IB	Do.
461.075	IB	Do.
461.100	IB	Do.
461.125	IB	Do.
461.150	IB	Do.
461.175	IB	Do.
461.200	IB	Do.
461.225	IB	Do.
461.250	IB	Do.
461.275	IB	Do.
461.300	IB	Do.
461.325	IB	Do.
461.350	IB	Do.
461.375	IB	Do.
461.400	IB	Do.
461.425	IB	Do.
461.450	IB	Do.
461.475	IB	Do.
461.500	IB	Do.
461.525	IB	Do.
461.550	IB	Do.
461.575	IB	Do.
461.600	IB	Do.
461.625	IB	Do.
461.650	IB	Do.
461.675	IB	Do.
461.700	IB	Do.
461.725	IB	Do.
461.750	IB	Do.
461.775	IB	Do.
461.800	IB	Do.
461.825	IB	Do.
461.850	IB	Do.
461.875	IB	Do.

Frequency	Services	Special limitations
461.900	IB	Do.
461.925	IB	Do.
Megahertz		
461.950	IB	Do.
461.975	IB	Do.
462.000	IB	Do.
462.025	IB	Do.
462.050	IB	Do.
462.075	IB	Do.
462.100	IB	Do.
462.125	IB	Do.
462.150	IB	Do.
462.175	IB	Do.
462.200	IM	
462.225	IM	
462.250	IM	
462.275	IM	
462.300	IM	
462.325	IM	
462.350	IM	
462.375	IM	
462.400	IM	
462.425	IM	
462.450	IM	
462.475	IW, IP, IF, IM, IT	
462.500	IM	
462.525	IW, IP, IF, IM, IT	
462.550	(*)	
462.725		
462.750	IB	Base only, 1-way paging.
462.775	IB	Do.
462.800	IB	Do.
462.825	IB	Do.
462.850	IB	Do.
462.875	IB	Do.
462.900	IB	Do.
462.925	IB	Do.
462.950	PS	
462.975	PS	
463.000	PS	Med 1.
463.025	PS	Med 2.
463.050	PS	Med 3.
463.075	PS	Med 4.
463.100	PS	Med 5.
463.125	PS	Med 6.
463.150	PS	Med 7.
463.175	PS	Med 8.
463.200	IB	110 W.
463.225	IB	Do.
463.250	IB	Do.
463.275	IB	Do.
463.300	IB	Do.
463.325	IB	Do.
463.350	IB	Do.
463.375	IB	Do.
463.400	IB	Do.
463.425	IB	Do.
463.450	IB	Do.
463.475	IB	Do.
463.500	IB	Do.
463.525	IB	Do.
463.550	IB	Do.
463.575	IB	Do.
463.600	IB	Do.
463.625	IB	Do.
463.650	IB	Do.
463.675	IB	Do.
463.700	IB	Do.
463.725	IB	Do.
463.750	IB	Do.
463.775	IB	Do.
463.800	IB	Do.
463.825	IB	Do.
463.850	IB	Do.
463.875	IB	Do.
463.900	IB	Do.
463.925	IB	Do.
463.950	IB	Do.
463.975	IB	Do.
464.000	IB	Do.
464.025	IB	Do.
464.050	IB	Do.
464.075	IB	Do.
464.100	IB	Do.
464.125	IB	Do.
464.150	IB	Do.
464.175	IB	Do.
464.200	IB	Do.
464.225	IB	Do.
464.250	IB	Do.
464.275	IB	Do.
464.300	IB	Do.
464.325	IB	110 W, local control only.
464.350	IB	110 W.
464.375	IB	110 W, local control only.
464.400	IB	110 W.
464.425	IB	110 W, local control only.
464.450	IB	110 W.
464.475	IB	110 W, local control only
464.500	IB	35 W, itinerant use.
464.525	IB	110 W, local control only.
464.550	IB	35 W, itinerant use.
Megahertz		
464.575	IB	110 W, local control only.
464.600	IB	110 W.
464.625	IB	Do.
464.650	IB	Do.
464.675	IB	110 W, local control only.
464.700	IB	110 W.
464.725	IB	Do.
464.750	IB	Do.
464.775	IB	110 W, local control only.
464.800	IB	110 W.
464.825	IB	110 W, local control only.
464.850	IB	110 W.
464.875	IB	110 W, local control only.
464.900	IB	110 W.
464.925	IB	110 W, local control only.
464.950	IB	110 W.
464.975	IB	110 W, local control only.
465.000	IB	35 W, 1-way paging.
465.025	PP	
465.050	PP	
465.075	PP	
465.100	PP	
465.125	PP	
465.150	PP	
465.175	PP	
465.200	PP	
465.225	PP	
465.250	PP	
465.275	PP	
465.300	PP	
465.325	PP	
465.350	PP	
465.375	PP	
465.400	PP	
465.425	PP	
465.450	PP	
465.475	PP	
465.500	PP	
465.525	PP	Nonvoice.
465.550	PP	Do.
465.575	PF	
465.600	PF	
465.625	PF	
465.650	IB	2 W, airport use.
465.675	IB	Do.
465.700	IB	Do.
465.725	IB	Do.
465.750	IB	Do.
465.775	IB	Do.
465.800	IB	Do.
465.825	IB	Do.
465.850	IB	Do.
465.875	IB	2 W, airport use, telemetry.
465.900	IB	110 W, central station protection.
465.925	IB	Do.
465.950	IB	Do.
465.975	IB	Do.
466.000	IB	Do.
466.025	IB	110 W, mobile; directional fixed.
466.050	IB	Do.

Frequency	Services	Special limitations
466.075	IB	Do.
466.100	IB	Do.
466.125	IB	Do.
466.150	IB	Do.
466.175	IB	Do.
466.200	IB	Do.
466.225	IB	Do.
466.250	IB	Do.
466.275	IB	Do.
466.300	IB	Do.
466.325	IB	Do.
466.350	IB	Do.
466.375	IB	Do.
466.400	IB	Do.
466.425	IB	Do.
466.450	IB	Do.
466.475	IB	Do.
466.500	IB	Do.
466.525	IB	Do.
466.550	IB	Do.
466.575	IB	Do.
466.600	IB	Do.
466.625	IB	Do.
466.650	IB	Do.
466.675	IB	Do.
466.700	IB	Do.
466.725	IB	Do.
466.750	IB	Do.
466.775	IB	Do.
466.800	IB	Do.
466.825	IB	Do.
466.850	IB	Do.
466.875	IB	Do.
466.900	IB	Do.
466.925	IB	Do.
Megahertz		
466.950	IB	Do.
466.975	IB	Do.
467.000	IB	Do.
467.025	IB	Do.
467.050	IB	Do.
467.075	IB	Do.
467.100	IB	Do.
467.125	IB	Do.
467.150	IB	Do.
467.175	IB	Do.
467.200	IM	Mobile only.
467.225	IM	Do.
467.250	IM	Do.
467.275	IM	Do.
467.300	IM	Do.
467.325	IM	Do.
467.350	IM	Do.
467.375	IM	Do.
467.400	IM	Do.
467.425	IM	Do.
467.450	IM	Do.
467.475	IM, IW, IP, IF, IT	Do.
467.500	IM	Do.
467.525	IM, IW, IP, IF, IT	Do.
467.550	[4]	
467.725		
467.750	IB	2W, telemetry.
467.775	IB	Do.
467.800	IB	Do.
467.825	IB	Do.
467.850	IB	Do.
467.875	IB	Do.
467.900	IB	Do.
467.925	IB	Do.
467.950	PS	Medical care dispatch.
467.975	PS	Do.
468.000	PS	Med 1.
468.025	PS	Med 2.
468.050	PS	Med 3.
468.075	PS	Med 4.
468.100	PS	Med 5.
468.125	PS	Med 6.
468.150	PS	Med 7.
468.175	PS	Med 8.
468.200	IB	110 W, mobile; directional fixed.
468.225	IB	Do.
468.250	IB	Do.
468.275	IB	Do.
468.300	IB	Do.
468.325	IB	Do.
468.350	IB	Do.
468.375	IB	Do.
468.400	IB	Do.
468.425	IB	Do.
468.450	IB	Do.
468.475	IB	Do.
468.500	IB	Do.
468.525	IB	Do.
468.550	IB	Do.
468.575	IB	Do.
468.600	IB	Do.
468.625	IB	Do.
468.650	IB	Do.
468.675	IB	Do.
468.700	IB	Do.
468.725	IB	Do.
468.750	IB	Do.
468.775	IB	Do.
468.800	IB	Do.
468.825	IB	Do.
468.850	IB	Do.
468.875	IB	Do.
468.900	IB	Do.
468.925	IB	Do.
468.950	IB	Do.
468.975	IB	Do.
469.000	IB	Do.
469.025	IB	Do.
469.050	IB	Do.
469.075	IB	Do.
469.100	IB	Do.
469.125	IB	Do.
469.150	IB	Do.
469.175	IB	Do.
469.200	IB	Do.
469.225	IB	Do.
469.250	IB	Do.
469.275	IB	Do.
469.300	IB	Do.
469.325	IB	Do.
469.350	IB	Do.
469.375	IB	Do.
469.400	IB	Do.
469.425	IB	Do.
469.450	IB	Do.
469.475	IB	Do.
469.500	IB	35 W, itinerant.
469.525	IB	110 W, mobile; directional fixed.
469.550	IB	35 W, itinerant.
469.575	IB	110 W, mobile; directional fixed.
469.600	IB	110 W.
Megahertz		
469.625	IB	Do.
469.650	IB	Do.
469.675	IB	110 W, mobile; directional fixed.
469.700	IB	Do.
469.725	IB	Do.
469.750	IB	Do.
469.775	IB	Do.
469.800	IB	Do.
469.825	IB	Do.
469.850	IB	Do.
469.875	IB	Do.
469.900	IB	Do.
469.925	IB	Do.
469.950	IB	Do.
469.975	IB	Do.
470.000-0125-470.2875	[2]	
470-512	[1]	Available in 13 urbanized areas only in accordance with provisions of subpt. L.

[1] All services.
[2] Domestic public.
[3] Remote pickup broadcast.
[4] Citizen's class A.

§ 90.560 Cross reference table.

The following table lists the rules sections which, prior to the adoption of part 90, governed the private land mobile radio services. The former rule parts were parts 89, 91, and 93. Action taken with respect to each former section is described.

§ 90.560 Cross reference table.

(Conversion of parts 89, 91, and 93 to part 90).

Present section No.	Proposed section and title	Summary of changes proposed
89.1	90.1—Basis and purpose	Minor rewording.
89.3	90.7]Definitions	Deletions and additions as necessary—minor reorganization and clarification.
89.5	NA	
89.7	90.415—Prohibited uses	Minor rewording.
89.9	90.115—Incligibility of foreign governments	Do.
89.11	90.151—Assisgnment of station authorizations	Do.
89.12	90.243Mobile relay stations	Relay, repeater and control uses separated under specific sections with minor rewording and clarification.
	90.245—Fixed relay stations	
	90.247—Mobile repeater stations	
	90.249—Control stations	
89.13 and 89.14	90.179—Cooperative use of stations	Minor rewording.
89.15 (a), (b), and (c).	90.175—Frequency coordination requirements	Do.
89.15 (d) and (e)	90.177—Protection of certain radio receiving locations	No change.
89.17	90.411—Civil defense communications in the public safety and special emergency radio services.	Do.
89.51	90.113—Station authorization required	Minor rewording.
89.55(a)	90.117—Applications for radio station authorization	Minor rewording, added reference to fees information.
89.55(b)	90.127(a)—Filing of applications	Minor rewording, added Chicago filing address information.
89.55(c)	90.119(b)—Application forms	Information set forth in 2 new sections with minor rewording.
	90.127(b)—Filing of applications	
89.55(d)	90.139—Preliminary processing of applications	No change.
89.55(e)	90.137—Applications for operation at temporary location	Minor rewording.
89.56	90.147—Mailing address furnished by licensee	No change.
89.57	90.125—Who may sign applications	Paragraph (c) expanded.
89.59 (a) and (b)	90.119(a)—Application forms	Minor rewording, referenced form 1046, eliminated construction permit.
89.59(d)	90.119(d)—Application forms	Minor rewording.
89.59(e)	90.145—Special temporary authority	Do.
89.59(f)	NA	Requirement to file form 456 deleted.
89.59(g)	90.119(b)—Application forms	Minor rewording.
89.60	90.493—Chicago region	No change.
89.61	90.145—Special temporary authority	Minor rewording—added an eligibility statement requirement.
89.63	90.129—Supplemental information to be routinely submitted with applications.	Minor rewording.
89.65	90.143—Grants of application	Do.
89.67	90.139—Preliminary processing of applications	Deleted reference to alien restrictions.
89.69	90.131—Amendment or dismissal of applications	No change.
89.71	90.155—Time in which stations must be placed in operation	Minor rewording, deleted construction permit requirements.
89.73	90.149—License term	Minor rewording with clarification.
89.75	90.135—Modification of license	Rewritten to specify changes requiring applications to be approved.
89.77	90.157—Discontinuance of station operation	No change.
89.79	90.19(c)—Police radio service	Do.
89.81	90.497—Special provisions relating to frequency assignments in the Chicago region.	Do.
89.101 (a), (b)(1), and (g).	90.173—Policies governing the assignment of frequencies	Deletions and additions as necessary—minor rewording and clarification.
89.101(b)(2)	90.253—Use of the frequency 4383.8 kHz	Combines applicable provisions in this and other sections.
89.101(c)	90.257—Assignment and use of frequencies in the band 72-76 MHz	Do.

Present section No.	Proposed section and title	Summary of changes proposed
89.101(d)	90.255—Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz.	Do.
89.101(e)	90.263—Substitution of frequencies below 25 MHz	Combines applicable provisions.
89.101 (h), (i), and (l).	See various frequency tables in subpts. B, C, and F	Extensive deletions, additions and rearrangements as necessary, minor rewording and clarification.
89.101 (p) and (q)	90.261—Assignment and use of frequencies in the band 450-470 MHz for fixed operations.	No change.
89.102	90.241—Radio call box operations	Minor rewording.
89.102(c)	Travelers' Information Stations	No change.
89.103	90.213—Frequency tolerance	Includes part of SSB requirements from sec. 89.124—minor rewording.
89.105	90.207—Types of emission	Reworded to reference each operation with types of emission permitted.
89.107	90.209—Bandwidth limitations	Minor rewording and includes schedule from SSB requirements in sec. 89.124.
89.109	90.211—Modulation requirements	Minor rewording and clarification.
89.111	90.205—Power	Do.
89.113(a)	90.427—Precaution against unauthorized operation	Minor rewording combined with other sections.
89.113 (b), (c), (d), and (e).	90.429—Control point and dispatch point requirements	Minor rewording and rearrangement.
89.115	90.215—Transmitter measurements	Minor rewording.
89.117	90.203—Type acceptance required	Combined with other sections.
89.119	....do	Do.
89.120	90.239—Interim provisions for operation of Automatic Vehicle Monitoring (AVM) systems.	Minor rewording.
89.122	90.237—Interim provisions for operation of radioteleprinter and radiofacsimile devices.	Do.
89.123	Subpt. L—Authorization in the band 470-512 MHz (UHF-TV sharing).	Combined with other sections.
89.124	NA	Rearranged by including technical standards in other appropriate sections.
89.126	90.235—Secondard fixed tone-signalling and alarm operations	Minor rewording.
89.151 (a), (b), (d), and (e).	90.403—General operating requirements	Added priority to safety-of-life-or-property communications.
89.151(c)	90.19(b)—Police radio service	Combined with other sections.
89.153	90.425—Station identification	Combined with rules for industrial and land transportation.
89.155	90.403—General operating requirements	Combined with other sections.
89.156	90.423—Operations on board aircraft	Minor rewording.
89.157	90.421—Operation of mobile units in vehicles not under the control of the licensee.	Combined with other sections.
89.159	90.409—Emergency operation of public safety and special emergency mobile stations at fixed locations.	No change.
89.161(a)	90.417—Interstation communications	Combined with other sections.
89.161(b)	90.253—Use of the frequency 4383.8 kHz	Minor rewording.
89.163 (a), (b), and (c).	90.433—Operator license requirements	Do.
89.163(d)	90.431—Unattended operation	Do.
89.163(f)	90.427—Precautions against unauthorized operation	Minor rewording, combined with other sections.
89.165	90.435—Posting of operator license	Minor rewording.
89.167	90.437—Posting station licenses	Do.
89.169	90.439—Inspection of stations	No change.
89.171	90.441—Inspection and maintenance of tower marking and associated control equipment.	Do.
89.173	90.449—Answers to a notice of violation	Minor rewording.
89.175	90.443—Contents of station records	No change.
89.177	90.445—Form of station records	Do.
89.179	90.447—Retention of station records	Do.
89.201	90.503—Eligibility	Minor rewording.
89.203	90.505—Showing required	Do.
89.205	90.507—Limitations on use	Do.
89.207	90.509—Frequencies available for assignment	No change.
89.209	90.511—Interference	Minor rewording.
89.211	90.513—Special provisions	Do.
89.213	90.515—Change or cancellation of authorization without hearing	No change except title.
89.215	90.517—Report of operation	Minor rewording.
89.251 and 89.253.	90.17(a)—Local government radio service	Minor rewording and rearrangement.
89.255	90.419—Points of communication	Combined with other sections.
89.257	90.421—Operation of mobile units in vehicles not under the control of the licensee.	Do.
89.259 (a) and (f).	90.17(b)—Local government radio service	Combined, renumbered limitations, included all frequencies in table.
89.259(b)	90.173—Policies governing the assignment of frequencies	Combined with other sections.
89.259(c)	NA	Deleted.
89.259(d)	90.17(e)—Local government radio service	Minor rewording.

Present section No.	Proposed section and title	Summary of changes proposed
89.259(g)	90.17(c)—Local government radio service	Renumbered and reworded with certain exceptions noted for sec. 89.254(g) (4), (5), and (7).
89.259(g)(4)	90.249—Control stations	Combined with other sections.
89.259(g)(5)	90.173(i)—Policies governing the assignment of frequencies	Minor rewording.
89.259(g)(7)	NA	Deleted.
89.259(h)	NA	Do.
89.301 and 303	90.19(a)—Police radio service	Minor rewording and rearrangement.
89.305 (a), (b), and (c).	90.419—Points of communications	Combined with other sections.
89.305(d)	90.19(b)—Police radio service	Do.
89.307(b)	90.421—Operation of mobile units in vehicles not under the control of the license.	Do.
89.307(c)	90.19(b)—Police radio service	Do.
89.309 (a) and (g).	90.19(d)—Police radio service	Combined, renumbered limitations, included all frequencies in the table.
89.309(b)	90.173—Policies governing the assignment of frequencies	Combined with other sections.
89.309(c)	90.19 (f) and (g)—Police radio service	Minor rewording.
89.309(d)	NA	Deleted.
89.309(e)	90.19(g)—Police radio service	Minor rewording.
89.309(h)	90.19(e)—Police radio service	Renumbered and reworded limitations with certain exceptions noted for secs. 90.304(h) (1), (2), and (4).
89.309(h)(1)	NA	Deleted.
89.309(h)(2)	90.173(i)—Policies governing the assignment of frequencies	Minor rewording.
89.309(h)(4)	90.249—Control stations	Combined with other sections.
89.309(i)	NA	Deleted.
89.351 and 89.353.	90.21(a)—Fire radio service	Minor rewording and rearrangement.
89.355	90.419—Points of communications	Combined with other sections.
89.357	90.421—Operation of mobile units in vehicles not under the control of the licensee.	Do.
89.359 (a) and (f).	90.21(b)—Fire radio service	Combined, included all frequencies in the table—renumbered limitations.
89.359(b)	90.173—Policies governing the assignment of frequencies	Combined with other sections.
89.359(c)	90.21(e)—Fire radio service	Minor rewording.
89.359(d)	NA	Deleted.
89.359(g)	90.21(c)—Fire radio service	Renumbered and reworded limitations with certain exceptions noted for secs. 89.359(g) (1), (2), and (4).
89.359(g)(1)	NA	Deleted.
89.359(g)(2)	90.173(i)—Policies governing the assignment of frequencies.	Minor rewording.
89.359(g)(4)	90.249—Control stations	Combined with other sections.
89.359(h)	NA	Deleted.
89.401 and 89.403.	90.23(a)—Highway maintenance radio service	Minor rewording and rearrangement.
89.405	90.419—points of communications	Combined with other sections.
89.407(b)	90.421—Operation of mobile units in vehicles not under the control of the licensee.	Do.
89.407(c)	90.23(c)—Highway maintenance radio service	Included in limitation on particular frequencies.
89.409 (a) and (e).	90.23(b)—Highway maintenance radio service	Combined—included all frequencies in table—renumbered limits.
89.409(b)	NA	Deleted.
89.409(c)	90.23(e)—)Highway maintenance radio service	Minor rewording.
89.409(f)	90.23(c)—Highway maintenance radio service	Renumbered and reword limits except as noted for sec. 89.409(f)(1).
89.409(f)(1)	90.249—Control stations	Combined with other sections.
89.409(g)	90.173—Policies governing the assignment of frequencies.	Do.
89.409(h)	NA	Deleted.
89.451 and 89.453.	90.25(a)—Forestry-conservation radio service	Minor rewording and rearrangement.
89.455	90.419—Points of communications	Combined with other sections.
89.457	90.421—Operation of mobile units in vehicles not under the control of the licensee.	Do.
89.459(a) and (d)..	90.25(b)—Forestry conservation radio service	Combined—included all frequencies in table, renumbered limitations.
89.459(b)	NA	Deleted.
89.459(e)	90.25(c)—Forestry-conservation radio service	Renumbered and reworded limits with exception noted for sec. 89.459(e)(1).
89.459(e)(1)	90.249—Control stations	Combined with other sections.
89.501	90.33—Scope	Minor rewording.
89.503	90.35—Medical services	Minor rewording 1st sentence of (b) deleted.
89.505	90.37—Rescue organization	Minor rewording.
89.507	90.39—Veterinarians	Do.
89.509	90.41—Disaster relief organization	Do.
89.511	90.43—School buses	Do.
89.513	90.45—Beach patrols	Do.
89.515	90.47—Establishments in isolated areas	Do.
89.517	90.49—Communication standby facilities	Do.
89.519	90.51—Emergency repair of public communications facilities.	Do.
89.521	90.419—Points of communication	Combined with other sections, minor rewording.
89.523(a)	90.243—Mobile relay stations	Do.
89.523(b)	NA	Specific requirement for monitoring deleted. See sec. 90.403(c).

Present section No.	Proposed section and title	Summary of changes proposed
89.523(c)	NA	Deleted.
89.523(d)	90.55—Paging operations	Minor rewording.
89.525(a) and (e)	90.53(a)—frequencies available	Combined—included all frequencies in table. Renumbered limitations.
89.525(b)	NA	Deleted.
89.525(c)	90.53(d)—Frequencies available	Minor rewording.
89.525(d)	90.53(a)—Frequencies available	Do.
89.525(f)	90.53(b)—Frequencies available	Renumbered and reworded limitations except as noted for secs. 89.525(f), (1), (13) and (22).
89.525(f)(1)	90.173(i)—Policies governing the assignment of frequencies.	Minor rewording.
89.525(f)(13)	NA	Deleted.
89.525(f)(22)	90.249—Control station	Combined with other sections.
89.551	90.17(c)—Local government radio service	State guard radio service moved to category of local government radio service.
89.553	90.405—Permissible communications	Combined with other sections.
89.555	90.419—Points of communication	Do.
89.559	90.17 (b) and (c)—Local government radio service.	Included in local government radio service.
89.601	90.351—Scope	Minor rewording and rearrangement.
89.602	90.7—Definitions	No change.
89.603	90.351—Scope	Minor rewording and rearrangement.
89.604	90.355—Eligibility	No change.
89.605	90.387—Station identification	Do.
89.651	90.379—Limitations on power and antenna height.	Do.
89.652	90.381—Restrictions on operational fixed stations	Do.
89.653	90.389—Restriction on interconnection.	Do.
89.655	90.385—Restrictions and limitations on permissible communications, on use, and on mode of operation.	Do.
89.656	90.393—special conditions governing the furnishing of radio equipment by licensees.	Do.
89.657	90.373—Restrictions on licensing manufacturers in the 806-821 MHz, and 851-866 MHz bands.	Do.
89.658	90.383—Acceptability of transmitters for licensing in the 806-821 MHz, and 851-866 MHz bands..	Do.
89.701	90.357—Forms to be used	Do.
89.702	90.359—Supplemental information to be furnished by applicants for facilities under this subpart.	Do.
89.703	90.391—Supplemental reports required of licensees authorized under this subpart.	Do.
89.704	90.363—Processing of applications	Do.
89.751	90.365—Selection and assignment of frequencies	Do.
89.801	90.375—Trunked systems loading requirements	No change (except title).
89.802	90.377—Conventional systems loading requirements.	Do.
89.803	90.369—Other criteria to be applied in assigning channels for use in conventional systems of communication.	No change.
89.804	90.395—Number of systems authorized in a geographical area.	No change (except title).
89.805	90.367—Limitation on the number of frequencies assignable for conventional systems.	No change.
89.806	90.371—Limitation on the number of frequency pairs assignable for trunked systems and on the number of trunked systems.	Do.
89.807	90.397—Special licensing requirements for radio stations used to provide service to persons other than the licensee.	Do.
89.808	90.361—Special limitations on amendment of applications for assignment or transfer of authorizations for radio systems used to provide service to persons other than the licensee.	Do.
89.901	90.461—Direct and remote control of transmitters	Minor rewording.
89.902	90.463—Transmitter control points	Combined with other sections.
89.903	....do	Do.
89.904	....do	Do.
89.905	....do	Do.
89.906	90.465—Control of systems of communication	Minor rewording.
89.907	90.467—Dispatch points	Do.
89.908	90.469—Unattended operation	Do.
89.925	90.7—Definitions	Do.
89.926	90.471—Points of operation in internal systems	No change.
89.927	90.473—Operation of internal systems through licensed fixed control points.	Do.
89.928	90.475—Operation of internal systems in specially equipped systems	Do.
89.950	90.7—Definitions	Do.
89.951	90.477—Restrictions on interconnected systems	Minor rewording.
89.952	90.479—Interconnection of radio systems with the facilities of telephone companies.	Do.
89.953	90.481—Permissible methods of interconnecting private and public systems of communication.	Do.

Present section No.	Proposed section and title	Summary of changes proposed
89.954	90.483—Special requirements pertaining to the methods of interconnection.	Do.
89.975	90.485—One-way paging operations in the 806-821 MHz, and 851-866 MHz bands.	Do.
91.1	90.1—Basis and purpose	Minor rewording.
91.2	90.415—Prohibited uses	Combined with other sections.
91.3	90.7—Definitions	Deletions and additions as necessary. Minor reorganization and clarification.
91.4	90.115—Ineligibility of foreign governments	Minor rewording.
91.5	90.153—Assignment of station authorization	Do.
91.6	90.181—Cooperative use of radio services	Action deferred for resolution of docket 18921.
91.7	90.243—Mobile relay stations	Relay, repeater and control uses separated under specific sections with minor rewording and clarification.
	90.245—Fixed relay stations	
	90.247—Mobile repeater stations	
	90.249—Control stations	
91.8(a)	90.173 (a) and (b)—Policies governing the assignment of frequencies	Minor rewording.
	90.175—Frequency coordination requirements	Do.
91.8(b)	NA	Deleted.
91.8(c)	Various radio services sections under limitation on number of frequencies assignable.	Minor rewording.
91.8(d)	NA	Deleted.
91.8(e)	90.173(g)—Policies governing the assignment of frequencies	Minor rewording.
91.8(f)	90.173(c)—Policies governing the assignment of frequencies	Do.
91.8(g)	90.257—Assignment and use of frequencies in the band 72-76 MHz	Combines applicable provisions in this and other sections.
91.8(h)	90.173(e)—Policies governing the assignment of frequencies	Minor rewording.
91.8(i)	NA	Deleted.
91.8(j)	Various radio services sections under limitation on number of frequencies assignable.	Minor rewording.
91.8 (k) and (m)	90.177—Protection of certain radio receiving locations	No change.
91.8(l)	90.261—Assignment and use of frequencies in the band 450-470 MHz for fixed operations.	Do.
91.9	90.185—Cooperative use of radio stations	Minor rewording.
91.50	90.147—Mailing address furnished by licensee	No change.
91.51	90.113—Station authorization required	Minor rewording.
91.53	90.145—Special temporary authority	Minor rewording—added a requirement for eligibility statement.
91.54(a)	90.119—Application forms	Combined with other sections.
91.54(b)	90.127(a)—Filing of applications	Minor rewording—added Chicago filing address.
91.54(c)	90.127(b)—Filing of applications	Combined with other sections.
91.54(d)	90.139—Preliminary processing of applications	No change.
91.54(e)	90.137—Applications for operation at temporary location	Minor rewording.
91.54(f)	90.129(e)—Supplemental information to be routinely submitted with applications.	Do.
91.55	90.125—Who may sign applications	Paragraph (c) expanded.
91.56(a)(b)	90.119(a)—Application forms	Minor rewording—reference to form 1046 added—eliminate reference to construction permit.
91.56(d)	90.153—Assignment of station authorization	Minor rewording.
91.56(e)	90.145—Special temporary authority	Do.
91.56(f)	NA	Requirement deleted.
91.56(g)	90.119(b)—Application forms	Minor rewording.
91.57(a)	90.119(c)—Application forms	Do.
91.57(b)	90.493—Chicago region	No change.
91.58(a)	90.129(1)—Supplemental information to be routinely submitted with applications.	Minor rewording.
91.58(a)(1)	90.173—Policies governing the assignment of frequencies	Do.
91.58(b)	Various services sections under limitation on number of frequencies assignable.	Do.
91.58(c)	NA	Deleted.
91.58 (d), (e), (f), (g), (h), (i), (j), (k), and (l).	90.129—Supplemental information to be routinely submitted with applications.	Minor rewording—combined with other sections.
91.59	90.143—Grants of applications	Minor rewording.
91.60	90.139—Preliminary processing of applications	Deleted reference to alien restrictions.
91.61	90.131—Amendment or dismissal of applications	No change.
91.62	90.155—Time in which stations must be placed in operation	Minor rewording—deleted construction permit requirements.
91.63	90.149—License term	Minor rewording and clarification.
91.64	90.135—Modification of license	Rewritten to specify changes.
91.65	NA	Deleted.
91.66	90.157—Discontinuance of station operation	No change.
91.67	90.497—Special provisions relating to frequency assignments in the Chicago region.	Do.
91.101(a)	NA	Deleted.

Present section No.	Proposed section and title	Summary of changes proposed
91.101(b)	90.253—Use of the frequency 4383.8 kHz	Combined with other sections.
91.102	90.213—Frequency tolerance	Do.
91.103(a)	90.207(a)—Types of emission	Combined with other sections—referenced each operation with type of emission permitted.
91.103(b)	90.233—Secondary base/mobile nonvoice signaling operations	Combined with other sections—deleted requirement for submission of coding system.
91.103(c)	NA	
91.104	90.209—Bandwidth limitations	Combined with other sections.
91.105	90.211—Modulation requirements	Do.
91.106	90.205—Power	Do.
91.107(a)	90.427—Precautions against unauthorized operation	Minor rewording.
91.107(b), (c), (d), and (e).	90.429—Control point and dispatch point requirements	Do.
91.108	90.215—Transmitter measurements	Combined with other sections—minor rewording.
91.109 (a) and (b).	90.203—Type acceptance required	Combined with other sections.
91.109(c)	NA	Deleted.
91.110	90.203—Type acceptance required	Combined with other sections.
91.112	NA	Rearranged by including technical standards in other appropriate sections.
91.113	90.237—Interim provisions for operation of radio teleprinter and radio facsimile devices.	Combined with other sections.
91.114	Subpart L—Authorizations in the band 470-512 MHz (UHF-TV Sharing).	Do.
91.116	NA	Deleted.
91.120	90.239—Interim provisions for operation of automatic vehicle monitoring (AVM) systems.	Combined with other sections.
91.151 (a) and (b).	90.405—Permissible communications	Do.
91.151(c)	90.419—Points of communication	Do.
91.151(d)	90.403—General operating requirements	Do.
91.151(e)	90.407—Communications permitted during emergency situations	Do.
91.151(f)	90.405—Permissible communications	Do.
91.152	90.425—Station identification	Combined with other sections reorganized.
91.153	90.403—General operating requirements	Minor rewording.
91.154	90.433—Operator license-requirements	Do.
91.155	90.435—Posting of operator license	Reorganized.
91.156	90.437—Posting station license	Do.
91.157	90.439—Inspection of stations	Minor rewording.
91.158	90.441—Inspection and maintenance of tower marking and associated control equipment.	Do.
91.159	90.449—Answer to a notice of violation	Do.
91.160	90.443—Content of station records	
	90.445—Form of station records	Separated and reorganized with minor rewording.
	90.447—Retention of station records	
91.162	90.423—Operations on board aircraft	No change.
91.201	90.503—Eligibility	Minor rewording.
91.202	90.505—Showing required	Do.
91.203	90.507—Limitations on use	Do.
91.204	90.509—Frequencies available for assignment	No change.
91.205	90.511—Interference	Minor rewording.
91.206	90.513—Special provisions	Do.
91.207	90.515—Change or cancellation of authorization without hearing	No change except title.
91.208	90.517—Report of operation	Minor rewording.
91.251	90.63(a)—Power radio service	Minor rewording—combined with other sections.
91.251 (d) and (e).	90.61—General eligibility	Combined with other sections.
91.252(a)	90.123—Full disclosures	Do.
91.252(b)	90.63(b)(2)—Power radio service	Minor rewording.
91.252(c)	90.63(e)(4)—Power radio service	Do.
91.252(d)	90.63(b)(1)—Power radio service	Do.
91.252(e)	Assignment and use of frequencies in the 450-470 MHz band for fixed operations.	Do.
91.252(f)	90.233—Secondary base/mobile nonvoice signaling operations	Combined with other sections.
91.253(a)	NA	Not necessary.
91.253 (b) and (c).	90.235—Secondary fixed tone signaling and alarm operations	Combined with other sections.
91.253(d)	90.421(h)—Operation of mobile units in vehicles not under the control of the licensee.	Minor rewording.
91.254(a)	90.63(c)—Power radio service	Included all frequencies in table. Renumbered limitations.
91.254(b)	....do	Renumbered and reworded limitations except as noted for 91.254(b), (6), (7), (8), (10), (26), (28), (29), (30), and (35).
91.254(b)(6)	NA	Deleted.
91.254(b)(7)	NA	Do.
91.254(b)(8)	90.255—Assignment and use of the frequencies 27.235, 27.245, 27.555, 27.265 and 27.275 MHz.	Minor rewording—combined with other sections.

Present section No.	Proposed section and title	Summary of changes proposed
91.254(b)(10)	90.263—Substitution of frequencies below 25 MHz	Minor rewording.
91.254(b)(26)	90.261—Assignment and use of frequencies in the band 450-470 MHz for fixed operations.	Combined with other sections.
91.254(b)(28)	NA	Deleted.
91.254(b)(29)	90.173—Policies governing the assignment of frequencies	Minor rewording.
91.254(b)(30)	90.249—Control stations	Combined with other sections.
91.254(b)(35)	90.259—Assignment and use of frequencies in the bands 216-220 MHz and 1427-1435 MHz.	Combined with other sections. Minor rewording.
91.255(a)	NA	Deleted.
91.255(b)	90.63(e)(3)—Power radio service	Minor rewording.
91.301	90.659(a)—Petroleum radio sevice	Minor rewording. Combined with other sections.
91.302(a)	90.123—Full disclosures	Minor rewording.
91.302(b)	90.65(d)(4)—Petroleum radio service	Do.
91.302(c)	Assignment and use of frequencies in the 450-470 MHz band for fixed operations.	Do.
91.302(d)	90.233—Secondary base/mobile nonvoice signalling operations	Combined with other sections.
91.302(e)	90.65(c)(4)—Petroleum radio service	Made into frequency limitation and exception to limit on number of frequencies.
	90.65(e)(4)—Petroleum radio service	
91.303(a)	NA	Not necessary.
91.303(b)	90.235—Secondary fixed tone signalling and alarm operation	Combined with other sections.
91.304(a)	90.65(b)—Petroleum radio service	Included all frequencies in table. Renumbered limitations.
91.304(b)	90.65(c)—Petroleum radio service	Renumbered and reworded limits except as noted for secs. 91.304(b) (4), (5), (6), (8), (27), (29), (31), (32), (33), and (37).
91.304(b)(4)	NA	Deleted.
91.304(b)(5)	NA	Do.
91.304(b)(6)	90.255—Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265 and 27.275 MHz.	Minor rewording combined with other sections.
91.304(b)(8)	90.263—Substitution of frequencies below 25 MHz	Minor rewording.
91.304(b)(27)	90.259—Assignment and use of frequencies in the bands 216-220 MHz and 1427-1435 MHz.	Combined with other section.
91.304(b)(29)	90.261—Assignment and use of frequencies in the bands 450-470 MHz for fixed operations.	Do.
91.304(b)(31)	NA	Deleted.
91.304(b)(32)	90.173(i)—Policies governing the assignment of frequencies	Minor rewording.
91.304(b)(33)	90.249—Control stations	Combined with other sections.
91.304(b)(37)	90.259—Assignment and use of frequencies in the bands 216-220 MHz and 1427-1435 MHz.	Do.
91.305(a)	90.65(d)—Petroleum radio service	Minor rewording.
91.305(b)	90.65(d)—Petroleum radio service.	Do.
91.351	90.67(a)—Forest products radio service	Minor rewording combined with other sections.
91.352	90.123—Full disclosures	Combined with other sections.
91.353	NA	Not necessary.
91.354(a)	90.67(b)—Forest products radio service	Included all frequencies in table. Renumbered limitations.
91.354(b)	90.67(c)—Forest products radio service.	Rewording and renumbered limitations except as noted for secs. 91.354(b) (4), (5), (6), (7), (8), (29), (31), (32), (33), and (35).
91.354(b)(4) and (5).	NA	Deleted.
91.354(b)(6)	90.255—Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz.	Minor rewording. Combined with other sections.
91.354(b)(7) and 91.354(b)(35).	90.259—Assignment and use of the frequencies in the bands 216-220 MHz and 1427-1435MHz..	Do.
91.354(b)(8)	90.263—Substitution of frequencies below 25 MHz	Minor rewording.
91.354(b)(29)	90.261—Assignment and use of frequencies in the bands 450-470 MHz for fixed operations.	Combined with other sections.
91.354(b)(31)	NA	Deleted.
91.354(b)(32)	90.173(i)—Policies governing the assignment of frequencies	Minor rewording.
91.354(b)(33)	90.249—Control stations	Combined with other sections.
91.355(a)	NA	Deleted.
91.355(b)	90.67(d)—Forest products radio service	Minor rewording.
91.401	90.69(a)—Motion picture radio service	Minor rewording. Combined with other sections.
91.402	90.123—Full disclosures	Combined with other sections.
91.403	NA	Not necessary.
91.404(a)	90.69(b)—Motion picture radio service	Included all frequencies in table. Renumbered limitations.
91.404(b)	90.69(c)—Motion picture radio service	Renumbered and reworded limitations except as noted for secs. 91.404(b) (2), (5), and (12).
91.404(b)(2)	90.263—Substitution of frequencies below 25 MHz	Minor rewording.
91.404(b)(5)	90.255—Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265 and 27.275 MHz.	Minor rewording. Combined with other sections.
91.404(b)(12)	90.259—Assignment of frequencies in the bands 216-220 MHz and 1427-1435 MHz.	Do.
91.405(a)	NA	Deleted.

Present section No.	Proposed section and title	Summary of changes proposed
91.405(b)	90.69(b)—Motion picture radio service	Minor rewording.
91.451	90.71(a)—Relay press radio service	Minor rewording. Combined with other sections.
91.452	90.123—Full disclosures	Combined with other sections.
91.454(a)	90.71(b)—Relay press radio service	Included all frequencies in table renumbered limitations.
91.454(b)	90.71(c)—Relay press radio service	Reworded and renumbered limitations except as noted for secs. 91.454(b) (2), (10), (11), (12), and (13).
91.454(b)(2)	90.255—Assignment and use of the frequencies 27.235, 27.245, 27.555, 27.265 and 27.275 MHz.	Minor rewording. Combined with other sections.
91.454(b)(10)	NA	Deleted.
91.454(b)(11)	90.173—(i) Policies governing the assignment of frequencies	Minor rewording.
91.454(b)(12)	90.249—Control stations	Minor rewording. Combined with other sections.
91.454(b)(13)	90.259—Assignment and use of frequencies in the bands 216–220 MHz and 1427–1735 MHz.	Do.
91.455(a)	NA	Deleted.
91.455(b)	90.71(d)—Relay press radio service	Minor rewording.
91.501	90.73(a)—Special industrial radio service	Combined with other sections.
91.502(a)	90.123—Full disclosures	Do.
91.502(b)	90.73(a)—Special industrial radio service	Incorporated into eligibility paragraph.
91.502(c)	90.83(b)—Special industrial radio service	Only change was to delete unenforceable sec. 91.502(c)(4).
91.502(d)	90.73(a)—Special industrial radio service	Minor rewording. Combined with other sections.
91.503(a)	90.243—Mobile relay stations	Combined with other sections.
91.503(b)	90.257—Assignment and use of frequencies in the band 72–76 MHz	Minor rewording. Combined with other sections.
91.503(c)	90.73(g)—Special industrial radio service	Minor rewording.
91.504(a)	90.73(e)—Special industrial radio service	Included all frequencies in table renumbered limitations.
91.504(b)	90.73(d)—Special industrial radio service	Reworded and renumbered limitations except as noted for secs. 91.504(b) (6), (7), (8), (10), (26), (27), (28), (29), (30), (33), (34), and (36).
91.504(b)(6) and (7).	NA	Deleted.
91.504(b)(8)	90.255—Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265 and 27.275 MHz.	Minor rewording. Combined with other sections.
91.504(b)(10)	90.263—Substitution of frequencies below 25 MHz	Minor rewording.
91.504(b)(26)	90.261—Assignment and use of frequencies in the band 450–470 MHz for fixed operations.	Combined with other sections.
91.504(b)(27)	NA	Deleted.
91.540(b)(28)	90.173(i)—Policies governing the assignment of frequencies	Minor rewording.
91.504(b)(29)	90.249—Control stations	Minor rewording. Combined with other sections.
91.504(b)(30) and (36).	90.259—Assignment and use of frequencies in the bands 216–220 MHz and 1247–1435 MHz.	Do.
91.504(b)(33)	90.257—Assignment and use of frequencies in the band 72–76 MHz	Do.
91.504(b)(34)	NA	Deleted.
91.504(c)	90.73(e)(5)—Special industrial radio service	Minor rewording.
91.504(d)	90.73(e)(4)—Special industrial radio service	Do.
91.506	90.73(e)(3)—Special industrial radio service	Do.
91.551	90.75(a)—Business radio service	Minor rewording. Combined with other sections.
91.552(a)	90.75(a) Business radio service	Do.
91.552(b)	90.123—Full disclosures	Combined with other sections.
91.552(c)	90.173—Policies governing the assignment of frequencies	Minor rewording.
91.552(d)	NA	Deleted.
91.552 (f) and (g)	90.75(c)—Business radio service	Minor rewording. Included in frequency limitations.
91.553(a)	90.243—Mobile relay stations	Minor rewording. Combined with other sections.
91.553(c)	90.75(f)—Business radio service	Minor rewording.
91.554(a)	90.75(b)—Business radio service	Included all frequencies in table. Renumbered limitations.
91.554(b)	90.75(c)—Business radio service	Reworded and renumbered limitations except as noted for secs. 91.554(b) (6), (7), (8), (34), (35, (38), (45), and (48).
91.554(b) (6) and (7).	NA	Deleted.
91.554(b)(8)	90.255—Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz.	Minor rewording. Combined with other sections.
91.554(b)(9)	90.249—Control stations	Do.
91.554(b)(34)	NA	Deleted.
91.554(b)(35)	90.173—Policies governing the assignment of frequencies	Minor rewording.
91.554(b)(38)	90.261—Assignment and use of frequencies in the band 450–470 MHz for fixed operations.	Combined with other sections.
91.554(b) (45) and (48).	90.259—Assignment of frequencies in the bands 216–220 MHz and 1427–1435 MHz.	Minor rewording. Combined with other sections.
91.554 (c) and (d).	90.75(d)—Business radio service	Minor rewording.
91.555	90.217—Exemption from technical standards	No change.
91.556	90.75(d)—Business radio service	Minor rewording.
91.601	90.103—Radiolocation service	Minor rewording. Combined with other sections.
91.602(a)	90.123—Full disclosures	Combined with other sections.
91.602(b)	90.129(c)—Supplemental information to be routinely submitted with applications.	Minor rewording. Combined with other sections.

Present section No.	Proposed section and title	Summary of changes proposed
91.602(c)	NA	Deleted.
91.603	90.103(a)—Radiolocation service	Combined with other sections.
91.604(a)	90.103(b)—Radiolocation service	Renumbered limitations.
91.604(b)	90.103(c)—Radiolocation service	Renumbered and reworded limitations.
91.605	90.103(e)—Radiolocation service	No change.
91.606	90.103(c)(7)—Radiolocation service	Minor rewording. Combined with other sections.
91.726 and 91.727	90.79(a)—Manufacturers radio service	Combined definition and permissible communications with eligibility.
91.728(a)	90.123—Full disclosures	Combined with other sections.
91.728(b)	90.79(b)—Manufacturers radio service	Minor rewording.
91.729(a)	90.243—Mobile relay stations	Minor rewording. Combined with other sections.
91.729(b)	90.79(b)—Manufacturers radio service	Minor rewording.
91.729(d)	90.257—Assignment and use of frequencies in the band 72–76 MHz	Combined with other sections.
91.730(a)	90.79(c)—Manufacturers radio service	Included all frequencies in table renumbered limitations.
91.730(b)	90.79(d)—Manufacturers radio service	Rewording and renumbered limits except as noted for secs. 91.730(b) (3), (4), (14), (16), (17), (18), (19), and (22).
91.730(b)(3)	90.255—Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz.	Minor rewording. Combined with other sections.
91.730(b)(4)	NA	Deleted.
91.730(b)(14)	90.261—Assignment and use of frequencies in the band 450–470 MHz for fixed operations.	Combined with other sections.
91.730(b)(16)	NA	Deleted.
91.730(b)(17)	90.173(i)—Policies governing the assignment of frequencies	Minor rewording.
91.730(b)(18)	90.249—Control stations	Minor rewording. Combined with other sections.
91.730(b)(19) and 91.730(b)(22).	90.259—Assignment and use of frequencies in the bands 216–220 MHz and 1427–1435 MHz.	Do.
91.751	90.81(a)—Telephone maintenance radio service	Do.
91.752(a)	90.123—Full disclosures	Combined with other sections.
91.752(b) and 91.752(c).	90.81(b)—Telephone maintenance radio service	Minor rewording. Combined with other sections.
91.753	90.243—Mobile relay stations	Do.
91.754(a)	90.81(c)—Telephone maintenance radio service	Included all frequencies in table. Renumbereed limitations.
91.754(b)	90.81(d)—Telephone maintenance radio service	Rewording and renumbered limitations except as noted for secs. 91.754(b) (3), (4), (10), (12), (13), (14), (16), and (18).
91.754(b)(3)	90.255—Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz.	Minor rewording. Combined with other sections.
91.754(b)(4)	NA	Deleted.
91.754(b)(10)	90.261—Assignment and use of frequencies in the band 450–470 MHz for fixed operations.	Minor rewording. Combined with other sections.
91.754(b)(12)	NA	Deleted.
91.754(b)(13)	90.173(i)—Policies governing the assignment of frequencies	Minor rewording.
91.754(b)(14)	90.249—Control stations	Minor rewording. Combined with other sections.
91.754(b)(16) and 91.754(b)(18).	90.259—Assignment and use of frequencies in the bands 216–220 MHz and 1427–1435 MHz.	Do.
93.1	90.1—Basis and purpose	Minor rewording.
93.2	90.415—Prohibited uses	Minor rewording. Combined with other sections.
93.3 and 93.4	90.183—Cooperative use	Deleted.
93.5	90.115—Ineligibility of foreign governments	Minor rewording.
93.6	90.153—Assignment of station authorization	Do.
93.7	90.7—Definitions	Deletions and additions as necessary. Minor reorganization and clarification.
93.8(a)	90.173(a)—Policies governing the assignment of frequencies	No change.
93.8(b)	90.173(g)—Policies governing the assignment of frequencies	Minor rewording.
93.8(c)	90.173(c)—Policies governing the assignment of frequencies	Do.
93.8(d)	90.257—Assignment and use of frequencies in the band 72–76 MHz	Combined with other sections.
93.8(e)	90.173(e)—Policies governing the assignment of frequencies	Minor rewording.
93.8(h)	Various services sections in the frequency limitations	Do.
93.9(a)	90.175—Frequency coordination requirements	Do.
93.9(b) and 93.9(c).	90.177—Protection of certain radio receiving locations	No change.
93.10	90.247 Mobile—repeater stations	Minor rewording. Combined with other sections.
93.50	90.147—Mailing address furnished by licensee	No change.
93.51	90.113—Station authorization required	Minor rewording.
93.52(a)	90.117—Applications for radio station authorizations	Do.
93.52 (b), (c) and (d).	NA	Deleted.
93.53	90.145—Special temporary authority	Minor rewording added an eligibility statement requirement.
93.54(a)	90.117—Applications for radio station authorization	Minor rewording. Referenced fee information.
93.54(b)	90.127(a)—Filing of applications	Minor rewording. Added Chicago filing address information.
93.54(c)	90.127(b)—Filing of applications	Minor rewording. Combined with other sections.
93.54(d)	90.139—Preliminary processing of applications	No change.
93.54(e)	90.137—Applications for operation at temporary locations	Minor rewording.

Present section No.	Proposed section and title	Summary of changes proposed
93.54(f)	90.129(e)—Supplemental information to be routinely submitted with applications.	Do.
93.55	90.125—Who may sign applications	Paragraph (c) expanded.
93.56 (a) and (b)	90.119(a)—Application forms	Minor rewording. Referenced form 1046, eliminated reference to construction permit.
93.56(d)	90.119(h)—Application forms	Minor rewording.
93.56(e)	NA	Deleted.
93.56(f)	90.119(b)—Application forms	Minor rewording.
93.56(g)	90.145—Special temporary authority	Do.
93.57(a)	90.119(c)—Application forms	Do.
93.57(b)	90.495—Chicago region	No change.
93.58	90.129—Supplemental information to be routinely submitted with applications.	Minor rewording.
93.59	90.143—Grants of applications	Do.
93.60	90.139—Preliminary processing of applications	Deleted reference of alien restrictions.
93.61	90.131—Amendment or dismissal of applications	No change.
93.62	90.155—Time in which stations must be placed in operation	Minor rewording. Deleted construction permit.
93.63	90.149—License term	Minor rewording.
93.64	90.135—Modification of license	Rewritten to specify changes requiring applications to be approved.
93.65	90.157—Discontinuance of station operation	No change.
93.67	90.497—Special provisions relating to frequency assignment in the Chicago region.	Do.
93.101(a)(1)	NA	Deleted.
93.101(a)(2)	90.253—Use of the frequency 4383.8 kHz	Combined with other sections.
93.101(b)	90.261—Assignment and use of frequencies in the band 450-470 MHz for fixed operations.	Do.
93.102	90.213—Frequency tolerance	Minor rewording. Combined with other sections.
93.103(a)	90.207(a)—Types of emission	Minor rewording. Referenced each operation with types of emission permitted.
93.103(b)	90.233—Secondary base/mobile nonvoice signaling operations	Minor rewording. Eliminated requirement for submission of coding systems.
93.103(c)	NA	
93.104	90.209—Bandwidth limitations	Minor rewording. Combined with other sections.
93.105	90.211—Modulation requirements	Do.
93.106	90.205—Power	Do.
93.107(a)	90.427—Precaution against unauthorized operation	Minor rewording.
93.107 (b), (c), (d) and (e).	90.429—Control point and dispatch point requirements	Minor rewording and rearrangement.
93.108	90.215—Transmitter measurements	Minor rewording.
93.109	90.203—Type acceptance required	Minor rewording. Combined with other sections.
93.110	....do	Do.
93.112	See various frequency tables in subpts. E and F	Extensive deletions, additions and rearrangement as necessary. Minor rewording and clarification.
93.113	90.237—Interim provisions for operation of radioteleprinter and radio-facsimile devices.	Minor rewording.
93.114	Subpart L—authorization in the band 470-512 MHz (UHF-TV sharing).	Combined with other sections.
93.116		Unnecessary.
93.120	90.239—Interim provisions for operation of automatic vehicle monitoring (AVM) systems.	Minor rewording.
93.151(a)	90.405—Permissible communications	Minor rewording. Combined with other sections.
93.151(b)	90.417—Interstation communications	Combined with other sections.
93.151(c)	90.419—Points of communications	Minor rewording. Combined with other sections.
93.151(c)(4)	90.417—Interstation communications	Combined other sections.
93.151(d)	90.403(a)—General operating procedure	Minor rewording.
93.151(e)	90.407—Communications permitted during emergency situations	Combined with other sections.
93.151(f)	90.405(c)—Permissible communications	Minor rewording. Combined with other sections.
93.151(g)	90.413—Civil defense communications in the taxicab radio services	Do.
93.152	90.425—Station identification	Reorganized. Combined with rules for public safety and industrial.
93.153	90.403—General operating requirements	Minor rewording. Combined with other sections.
93.154	90.433—Operator license requirement	Minor rewording.
93.155	90.425—Station identification	Do.
93.156	90.437—Posting station licenses	Do.
93.157	90.439—Inspection of stations	No change.
93.158	90.441—Inspection and maintenance of tower marking and associated control equipment.	Do.
93.159	90.449—Answer to a notice of violation	Minor rewording.
93.160	90.443—Content of station records	Separated and reorganized. Minor rewording.
	90.445—Form of station records	Do.
	90.447—Retention of station records	Do.
93.161	90.527—Land transportation industries communications emergency plan (LATICEP).	No change.

Present section No.	Proposed section and title	Summary of changes proposed
93.162 and 93.163.		
93.164	90.423—Operations on board aircraft	Minor rewording.
93.201	90.503—Eligibility	Do.
93.202	90.505—Showing required	Do.
93.203	507—Limitations on use	Do.
93.204(a)	90.509—Frequencies available for assignment	Do.
93.204(b)	Various land transportation radio services under additional frequencies available, or limitation on number of frequencies assignable.	Do.
93.205	90.511—Interference	Do.
93.206	90.513—Special provisions	Do.
93.207	90.515—Change or cancellation of authorization without hearing	No change except title.
93.208	90.517—Report of operation	Minor rewording.
93.251(a)	90.89(a)—Motor carrier radio service	Minor rewording. Combined with other sections.
93.251(b)	90.123—Full disclosures	Combined with other sections.
93.252	90.89 (b) and (c)—Motor carrier radio service	Placed frequencies in table form. Minor rewording of limitations.
93.253(a)	90.261—Assignment and use of frequencies in the band 450-470 MHz for fixed operations.	Minor rewording. Combined with other sections.
93.253(b)	90.257—Assignment and use of frequencies in the band 72-76.	Do.
93.253(d)	NA	Deleted.
93.253(e)	90.89(e)(2)—Motor carrier radio service	Minor rewording.
93.254	90.255—Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265 and 27.275 MHz.	Minor rewording. Combined with other sections.
93.255	NA	Deleted.
93.351(a)	90.91(a)—Railroad radio service	Minor rewording. Combined with other sections.
93.351(b)	90.123—Full disclosures	Combined with other sections.
93.352 (a), (c), and (f).	90.91 (c) and (d)—Railroad radio service	Placed frequencies in table form. Minor rewording of limitations.
93.352(b)	90.257—Assignment and use of frequencies in the band 72-76 MHz	Minor rewording. Combined with other sections.
93.352(d)	90.249—Control stations	Do.
93.352(e)	90.91(e)—Railroad radio service	Minor rewording.
93.353(a)	90.261—Assignment and use of frequencies 450-470 MHz for fixed operations.	Minor rewording. Combined with other sections.
93.353(b)	90.257—Assignment and use of frequencies in the band 72-76 MHz	Do.
93.353(c)	90.91(c)—Railroad radio service	Included in frequency table. Minor rewording of limitation.
93.353(d)	NA	Deleted.
93.353(e)	90.91(e)(2)—Railroad radio service	Minor rewording.
93.353(f)	90.91(e)—Railroad radio service	Do.
93.355	90.243—Mobile relay stations	Relay, repeater and control uses separated under specific sections with minor rewording and clarification.
	90.245—Fixed relay stations	
	90.247—Mobile repeater stations	
	90.249—Control stations	
93.356	90.255—Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265 and 27.275 MHz.	Minor rewording. Combined with other sections.
93.357(a)	90.91(b)—Railroad radio service	Minor rewording.
93.357(b)	90.421—Operation of mobile units in vehicles not under the control of the licensee.	Minor rewording. Combined with other sections.
93.352(c)	90.91(d)(3) and (d)(4)—Railroad radio service	Incorporated as assignment limitations on the appropriate frequencies. Minor rewording.
93.357(d)	90.91(b)—Railroad radio service	No change.
93.401(a)	90.93(a)—Taxicab radio service	Minor rewording. Combined with other sections.
93.402(b)	90.123—Full disclosures	Combined with other sections.
93.402	90.93 (b) and (c)—Taxicab radio service	Placed frequencies in table form. Minor rewording of limitations.
93.403	NA	Deleted.
93.404	90.255—Assignment and use of frequencies 27.235, 27.245, 27.255, 27.265 and 27.275 MHz.	Minor rewording. Combined with other sections.
93.405	90.412—Civil defense communications in the taxicab radio service	Minor rewording.
93.501(a)	90.95(a)—Automobile emergency radio service	Minor rewording. Combined with other sections.
93.501(b)	90.123—Full disclosures	Combined with other sections.
93.502(a)	90.405—Permissible communications	Minor rewording. Combined with other sections.
93.502(b)	90.95(a)—Automobile emergency radio service	Minor rewording. Combined with eligibility provisions.
93.502(c)	90.95—Automobile emergency radio service	Minor rewording.
93.503	90.95 (c) and (d)—Automobile emergency radio service	Placed frequencies in table form. Minor rewording of limitations.
93.504	90.225—Assignment and use of the frequencies 27.235, 27.245, 27.255, 27.265, and 27.275 MHz.	Minor rewording. Combined with other sections.
93.506	90.421—Operation of mobile units in vehicles not under the control of the licensee.	Do.

PART 91—[DELETED]

PART 93—[DELETED]

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